

THE MEDICAL JOURNAL OF AUSTRALIA



VOL. I.—14TH YEAR.

SYDNEY: SATURDAY, APRIL 30, 1927.

No. 18.

LONDON HOSPITAL "ULTRATAN" & CHROMICIZED CATGUT



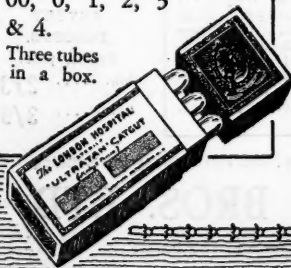
The London Hospital Catgut has been perfected as the result of long research and painstaking experiment by a team of specialists, comprising practical Surgeons, Bacteriologists and Chemists.

In Tubes for Immediate Surgical Use.

For absorption in 10,
20 and 30 days.

Standard Gauges: Nos.
00, 0, 1, 2, 3
& 4.

Three tubes
in a box.



STERILITY is ensured by most stringent tests in the Bacteriological Department of the London Hospital.

TENSILE STRENGTH.—Every batch is tested and strictly standardised to ensure the necessary tensile strength and elasticity.

UNIFORMITY OF GAUGE.—All ligatures are carefully gauged throughout their entire length.

ABSORPTION.—The time factor of absorption is practically constant, and can be guaranteed as stated for each grade.

Fresh stocks of all varieties and packings obtainable from the Sole Agents for Australia:

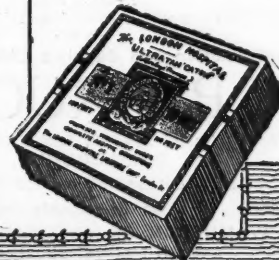
ALLEN & HANBURY (A'asia) LTD.,
B.M.A. Building, Elizabeth Street, Sydney.

Special Packings for Hospitals.

100 Feet lengths, requiring external sterilisation.

Absorption, 20 & 30 day.
Gauges—

Nos. 00, 0, 1, 2, & 3.





The new season's most exclusive designs in fine quality Crimean Pyjamas at Peapes'

Crimean Flannel, in the excellent quality which Peapes invariably utilise, is the ideal material for men's winter night-wear.

Soft, smooth, delightfully warm and thoroughly protective, it lends itself also to some very smart effects in this new series of fancy coloured stripes.

At 25/- Crimean Flannel Pyjamas: new, coloured stripe groupings and **32/6** on light or dark grounds.

At 39/6 Crimean Flannel Pyjamas: all-wool, in a most effective selection of new colourings.

Patterns of materials of these superior Ready-to-wear Pyjamas will be forwarded to any address promptly on request.

Peapes pay postage.

Please state height, chest and inside leg measurements.

Peapes & Co., Limited

Men's and Boys' Outfitters

GEORGE STREET (opp. Hunter Street), SYDNEY.

J. D. RIEDEL'S (A.-G.) Special Preparations are world renowned

DIJODYL.

An iodine preparation. Contains 46% Iodine. Permits, owing to its slow elimination in the organism, of using iodine in the best possible way for the body. All unpleasant symptoms of iodism are eliminated, notwithstanding the very prominent, energetic curative effect the product brings about with comparatively small doses of 1 or 2 tablets (each 0.3 g.) per day. Indicated in all cases tertiary syphilis, arteriosclerosis, bronchitis, asthma, etc.

HEXAL.

The antiseptic for the bladder. Superior to all similar hexamethylenetetramine preparations as its acid feature enables it to acidify any urine within a few days; consequently the necessary separation of formaldehyde which solely is the active principle, is warranted in any case.

GONOSAN.

World famed for gonorrhœa.

NOCTAL.

A first-class soporific; effective, reliable, inexpensive.

Information and Supplies Obtainable from

A. P. DRUG CO.

York House, 294-298, Little Collins Street, MELBOURNE.

SOLE Representatives for Australasia.

Also Obtainable from

G. F. W. MUSSON, Chemist, 38, Hunter St., Sydney and All Medical Supply Houses.

A Message to Doctors

From GRACE BROS.

Our policy of selling strictly for Cash enables us to offer the very best values. The prices quoted for the following "high quality standard" goods are proof that it pays to buy for Cash at Grace Bros.



SURGICAL SCISSORS.

Sheffield steel.
Prices, pair:
Straight, **2/3**
Curved, **2/11**

CLINICAL THERMOMETERS

Zeal's Guaranteed.
Prices, each:
3 min., **1/6** 1 min., **1/4**

SURGEONS' RUBBER GLOVES.

Standard quality.
Price, **2/9** pair.

THE "VITAL" GLOVES. Made from the new high tensile rubber; will stand repeated sterilising.
Price, **3/11** pr.



ARTERY FORCEPS.

Prices, pair:
5in. **2/3**
6 1/2 in. **3/9**

Medical Science Dept., 1st Floor, Grosse St. Building.

GRACE BROS. LTD.

BROADWAY, SYDNEY.*

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—14TH YEAR.

SYDNEY: SATURDAY, APRIL 30, 1927.

No. 18.

Authors of articles submitted for publication are requested to read the following instructions and to comply with them.

All articles must be typed with double or treble spacing. Carbon copies should not be sent. Abbreviations should be avoided, especially those of a technical character at times employed in ward notes. Words and sentences should not be underlined or typed in capitals. The selection of the correct type is undertaken by the Editors. When illustrations are required, good photographic prints on glossy gaslight papers should be submitted. Each print should be enclosed in a sheet of paper. On this sheet of paper the number of the figure and

the legend to appear below the print should be typed or legibly written. On no account should any mark be made on the back of the photographic print. If no good print is available, negatives may be submitted. Line drawings, graphs, charts and the like should be drawn on thick, white paper in India ink by a person accustomed to draw for reproduction. The drawings should be large and boldly executed and all figures, lettering and symbols should be of sufficient strength and size to remain clear after reduction. Skiagrams can be reproduced satisfactorily only if good prints or negatives are available. The reproduction of all illustrations but especially of skiagrams entails the sacrifice of

time and energy and is expensive. Authors are expected to take a corresponding amount of trouble on the preparation of their illustrations, whether skiagrams, photographs, wash drawings or line drawings. The references to articles and books quoted must be accurate and should be compiled according to the following scheme. The order should correspond to the order of appearance in the article. The initials and surnames of the authors, the full title of the article or book, the full (unabbreviated) title of the journal in which the article appears, the date of the issue (day, month and year) and the number of the first page should be given in this sequence.

Table of Contents

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES—	PAGE.	UNIVERSITY INTELLIGENCE—	PAGE.
"The Treatment of Congenital Spastic Paraplegia by Sympathetic Ramisection," by N. D. ROYLE, M.D., Ch.M.	632	The University of Sydney	659
"Blood Pressure in the Leg in Aortic Regurgitation," by ERIC F. GARTRELL, M.B., B.S., M.R.C.P.	642	PUBLIC HEALTH—	
REPORTS OF CASES—		Queensland	660
"Malarial Therapy in General Paralysis," by REG. S. ELLERY, M.B., B.S.	647	Tasmania	661
"Ileal Intussusception in an Adult," by ALAN PRYDE, M.B., B.S.	648	SPECIAL CORRESPONDENCE—	
REVIEWS—		London Letter	662
Obstetrics for the Student and the Practitioner	649	CORRESPONDENCE—	
A Guide to Medical Practitioners at Sea	649	Radiotherapy	663
Adolph Kussmaul	649	The Red Backed Spider	664
Hospital Treatment for the Tuberculous	650	The Standardization of Obstetrical Treatment	664
Care of the Normal Child	650	Treatment of Snake Bite	665
The Kahn Test	650	CORRIGENDA	665
LEADING ARTICLES—		POST MORTEM EXAMINATION FEES IN WESTERN AUSTRALIA	665
Surgeons	651	OBITUARY—	
CURRENT COMMENT—		Thomas Henry Fiaschi	665
Leptomenioma of the Spinal Cord	652	PROCEEDINGS OF THE AUSTRALIAN MEDICAL BOARDS—	
Acute Phlegmonous Gastritis	653	Queensland	665
ABSTRACTS FROM CURRENT MEDICAL LITERATURE—		MACDONALD PRESENTATION FUND	666
Therapeutics	654	BOOKS RECEIVED	666
Neurology	655	MEDICAL APPOINTMENTS	666
BRITISH MEDICAL ASSOCIATION NEWS—		MEDICAL APPOINTMENTS VACANT, ETC.	666
Scientific	656	MEDICAL APPOINTMENTS: IMPORTANT NOTICE	666
Nominations and Elections	657	DIARY FOR THE MONTH	666
MEDICAL SOCIETIES—		EDITORIAL NOTICES	666
The Newcastle Hospital Clinical Society	657		
The Alfred Hospital Clinical Society	658		

THE TREATMENT OF CONGENITAL SPASTIC PARAPLEGIA BY SYMPATHETIC RAMISECTION.¹

By N. D. ROYLE, M.D., Ch.M. (Sydney).

Honorary Orthopaedic Surgeon, Lewisham Hospital;
Honorary Orthopaedic Surgeon, State Children's
Relief Board, New South Wales.

AT a risk of repetition and to clear away misunderstandings I have outlined in this paper the manner in which the treatment of spastic paralysis by sympathetic ramisection was originated. I shall, therefore, first of all, briefly summarize my previous publications.

THE EXPERIMENTAL BASIS OF SYMPATHETIC RAMISECTION.

The resistance offered to the moving group of muscles by its antagonist suggested to me that the principle of reciprocal innervation was not effective in spastic paralysis.⁽¹⁾ Even in the presence of definite voluntary control over muscle groups there appeared to be some factor interfering with the normal relaxation of the antagonists. As soon as I became aware that a dual innervation had been described for voluntary muscles, I carried out experiments on goats⁽²⁾ to ascertain whether the sympathetic element of this dual innervation could account for that factor. The results of these experiments may be summarized as follows:

The normal animal from which the left abdominal sympathetic trunk had been removed, could walk well after a short interval. Striking differences, however, in the behaviour of the two hind limbs were seen when the animal was placed on its back. In this position both lower limbs were at first held extended, but after an interval the left hind limb gradually fell into a more flexed and abducted position than the right hind limb. The knee jerks of the two limbs were also different in character. The relaxation time on the right side was much longer than the extension time. On the left side the relaxation time was approximately the same as the extension time, the whole movement was more quickly performed than on the right side. In addition, resistance to both passive flexion and extension was greater on the normal side. These differences were more evident when the animal was placed under light anaesthesia.

In the decerebrate animal similar changes were observed. There was a distinct loss of resistance in the left hind limb. The knee jerks were different in the two hind limbs.

The lengthening and shortening reactions as described by Sherrington were sometimes absent and usually much less evident on the left side than on the right.

The removal of the sympathetic nerves does not usually prevent extension occurring in the left hind limb in the decerebrate animal, though the extended posture is not well maintained. In the last animal under observation and decerebrated on December 3,

1926, fully one hundred and twenty days after the left abdominal sympathetic trunk had been removed, extension did not appear at all in the left hind limb, although the head, trunk and other three limbs were rigid.

These differences are apparent immediately after the sympathetic nerves have been removed. In the decerebrate experiments an interval of time was left between the removal of the sympathetic nerves and the decerebration and it appeared that the differences were more striking, the greater the interval between these two operations.

Although a number of investigators have failed to verify my results, no one has attempted to reproduce them on the goat, the animal which I used. For observations like these the cat, the animal used by most experimenters, is too small, although I was able to reproduce repeatedly and consistently on the cat my results in every particular. The appreciation of lessened resistance is much more difficult in the cat because the bulk of muscle tissue is very much less. The effects of gravity are also less evident for the same reason. In addition to those previously reported, I have made observations upon many decerebrate goats, all of which show essentially the same changes on the operated side.

Experimental results corroborating mine have recently been published by Kuntz and Kerper⁽³⁾ who carried out extensive observations on normal and anaesthetized dogs.

On account of the doubt that is thrown on my results by observations of other experimenters and the statement by Dr. E. D. Adrian,⁽⁴⁾ that the differences described by me in the two limbs are too great to have been overlooked by experienced physiologists, I have asked the well-known neurologist, Dr. Alfred Campbell, to examine one of my animals. The following is his statement:

Observations by Dr. Alfred W. Campbell.

I write these notes in response to a request from Dr. Royle for a report by an independent observer concerning the effects of sympathetic ramisection in the case of the goat. The observations were made on a goat (female) on which lumbar ramisection had been done by Dr. Royle about seventy days previously. And the animal was examined not only in the conscious state, but under an anaesthetic (ether), because it had been found that induction of light anaesthesia facilitated the demonstration of certain of the postoperative changes.

Posture.

When the animal was placed at rest on its back, the hind limb on the operated side drooped or fell into a flexed and abducted position and when lifted, immediately fell back into the same position. This alteration in posture was so pronounced and so sustained as to be plain to any observer and it was present in the same degree when the animal was conscious as when anaesthetized.

Muscle Tone.

On comparing passive flexion and extension movements in the two hind limbs it was unmistakably noticeable that there was less resistance in the movements of the operated than the normal limb. But satisfactorily to expose this difference it was necessary to have the animal either lying perfectly quiet or under light anaesthesia. The muscles of the operated limb also seemed to be softer on palpation; a surer and more convincing proof of inequality of tone, however, was obtained by taking hold of the

¹A summary of this article appears simultaneously in *The British Medical Journal* by special arrangement with the editor.

limbs and pressing the *tendo Achillis* against the bone, when one was immediately struck by the relative lack of tension on the operated side.

The Knee Jerks.

Just as the tone of the muscles varied with the emotional state of the animal, so also did the knee jerks. In the presence of the least degree of excitement the jerks on the two sides seemed to be equal. When, however, the animal was lying quietly or better, under light anaesthesia, the following difference was noted. On the operated side the jerk was of the short and sharp type, with the phase of extension equal to that of relaxation, whereas on the normal side the excursion was greater and the phase of relaxation appreciably longer.

Active Movements.

In its ordinary state the animal appeared to stand and walk without impairment; a brief period (about fifteen minutes) of anaesthesia, however, resulted in the following remarkable change. Having recovered ability to stand, it did so with the weight of its hindquarters resting mainly on the normal leg and when induced to walk it continued mainly to use the normal leg, deviating to the normal side as it progressed and at the same time showing a distinct limp on the operated side. In the course of a few minutes this disability passed off.

THE EXPERIMENTAL OPERATION.

The results of my observations upon goats were so striking that I considered the application to the human subject justifiable. A suitable subject offered himself for experiment and I devised and performed the first operation on September 1, 1923.

The Patient.

The first patient, A.C., had a gun shot wound of the cerebral cortex. The bullet entered his skull just above the left ear and had caused an extensive laceration of the cerebral hemisphere in the region of the central sulcus of the left side. The wound had extended across the middle line on to the opposite cerebral hemisphere. The patient at the time of the operation was thirty years of age and the injury had been received seven years previously. He had been unable to speak for three months and to walk at all for over two years after the injury.

Spastic hemiplegia affected both upper and lower limbs on the right side; the left lower limb was also spastic, but only in the leg and foot. The knee jerk of the left lower limb was normal, the ankle jerk was exaggerated and there was an ankle clonus. The whole foot was rigid and the patient's control was defective.

On the right side there was an exaggerated knee jerk, a patellar clonus, an ankle clonus and an exaggerated ankle jerk. The Babinski reaction was present in both lower limbs. The patient could walk, but had the greatest difficulty in controlling the right lower limb. When he placed weight on the limb, there appeared a coarse uncontrollable tremor. He could not stand on the right lower limb, though he could stand comfortably on the left. It was only possible for him to walk forward; he could not walk laterally or backward. His walking could be described better, however, as a lurch.

This patient was subject to occasional tonic fits which were of only short duration and which could be easily controlled by the administration of sedatives. The control of his genito-urinary system was

normal, but the patient suffered from chronic constipation. There were no sensory changes in the affected limbs.

In view of the criticisms of Dr. Walsh and Dr. Adrian⁽⁵⁾ concerning this patient the following statement by Dr. Ralph Noble, Honorary Neurologist and Psychiatrist to the Lewisham Hospital and Honorary Assistant Physician to the Psychiatric Clinic, Royal Prince Alfred Hospital, Sydney, is of interest:

I handed this patient over to several specialists who had had much experience in Seale Hayne and other hospitals for functional nerve cases. He was given suggestion, re-education and other forms of psychological treatment by competent physicians, but without success. He was married to a trained masseuse who spent much time in reeducative methods before operation without result.

SUMMARY OF THE RESULTS OF THE EXPERIMENTAL OPERATION.

Changes in Tone.

A great change in tone occurred in this patient immediately after operation. When examined at the end of six hours the contrast in the behaviour of the two lower limbs was striking. If, for example, the right foot were dorsiflexed passively and released, it immediately fell into plantar-flexion. If the left foot were pushed into dorsiflexion, the return to the plantar-flexed position occurred slowly and gradually. After operation the clonus on the right side became progressively less, but on the left side a vigorous clonus remained. This alteration in the behaviour of the two lower limbs still exists, three years after operation.

Vasomotor Changes.

Following the experimental operation vasomotor changes were present when the patient was first examined. There was capillary dilatation and an increase in temperature on the side of operation and these changes though somewhat modified, still persist.

Changes in Muscular Control.

Changes in muscular control were also apparent. There was an immediate increase in the range of movement and the control was more effective. This was illustrated by the patient's ability to support himself on the right lower limb after operation. He was also unable to walk backwards before operation, but could do so easily afterwards.

Balance and Tremor.

There was also an improvement in balance and the tremor which affected the right lower limb before operation, disappeared.

Wasting and Power.

Observations upon laboratory animals showed that the removal of the sympathetic nerves did not lead to wasting; on the contrary, in most cases there was actually an increase in the size of the muscles in the limbs from which the sympathetic nerves had been removed. This first patient's limbs showed an increase in size and power and resistance to fatigue became gradually greater.

Visceral Changes.

An unexpected change occurred in this patient after operation. Chronic constipation which had been present since the time of his injury, was relieved. The patient reports at the present time great improvement on his previous condition. There was no interference with the control of his genito-urinary system.

PROFESSOR HUNTER'S EXPERIMENTS.

These results in the laboratory animals and in the human subject were subsequently illustrated by the late Professor John Irvine Hunter's experiments on the wing of the bird⁽⁶⁾ and it is interesting to see that his results have also been reproduced by Kuntz and Kerper.

THE APPLICATION OF THESE RESULTS.

The results obtained from the first patient justified the application of a similar procedure to other patients suffering with spastic paralysis. Among these were a number of cases of congenital spastic paraplegia.

CONGENITAL SPASTIC PARAPLEGIA.

Under the term congenital spastic paraplegia are grouped a number of conditions which should be differentiated. For the purpose of description there are two main types: (i.) The rigid type, (ii.) the choreic type.

In the first type there are two groups: (a) Cases in which the patient retains or has developed muscular control, (b) cases in which no voluntary control is present.

In the first group the muscular control is usually defective and although the patient may be able to do a coordinated movement, such as flexion or extension of the lower limbs, the control of muscle groups is usually deficient. The patient's movements are limited by the rigidity of the opposing group of muscles and by the presence of contracture. It was this type of patient that suggested to me that there was a failure of reciprocal innervation in spastic paralysis. The rigidity of such patients is increased by conscious effort. The spasm of the extensor and adducting muscles of the lower limbs which appears when the patient attempts to stand or walk or from emotional excitement is evidence of defective cortical control. It should not be confused with the rigidity that affects all the muscles of a patient suffering from spastic paraplegia, but may be compared with the extension carried out by a normal animal under the influence of emotion. The disability of the spastic paralytic is due to the difficulty in moving against the resistance offered by the rigidity of the antagonistic muscles and to the retardation of neuro-muscular control occasioned by the same factor. The range of passive movements of such patients is also limited in varying degrees by the rigidity.

There are some cases in which the patient does not usually exhibit much rigidity and the limbs may appear flaccid when at rest. These may show extensor and adductor spasm if an attempt at standing or walking is made and display other evidences of defective cortical control. The increase in tone

is revealed, if carefully sought, in the abnormal character of the tendon jerks.

Reflex Activity.

When deep reflexes are present they are usually exaggerated and have as a characteristic feature a prolonged relaxation phase. This may lead to the step-ladder phenomenon in the knee jerk in which each successive contraction of the quadriceps imposes a more and more extended position of the leg and thigh.

The tendon reflexes may be entirely masked by rigidity (see History XIX.). In spastic paraplegia of the rigid type the Babinski reaction may or may not be present. Both the prolongation of the relaxation and the step-ladder phenomenon are extremely variable; for example, both phenomena are more evident after exercise. Sometimes the tendency for the position to be maintained is modified and may disappear after a period of rest.

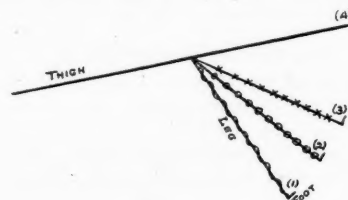


FIGURE I.
Diagram of Successive Stages of Knee Jerks.

Difficulty in Inhibition.

A feature which is present in all spastic paralysis and is often seen well in congenital spastic paraplegia, is the inadequacy of inhibition of muscular contraction. For example, a patient may be able to extend the knee joint, but having done so, may find the greatest difficulty in relaxing the quadriceps muscle (see History XVIII.). That may be regarded as evidence of lack of control over the factor determining the maintenance of posture. Under normal circumstances we acquire control over the nervous mechanism for altering the state of contraction of muscles to change position, but once a posture is attained, we have no means of making that posture more or less fixed. The eyelid, for example, can remain open at a definite posture, but that posture is determined apparently by muscle tone and cannot be made more or less fixed voluntarily. If the posture-maintaining or plastic tone becomes exaggerated, the control of our change-position mechanism may not be adequate enough to cause a change in posture, since we have no accurate idea of inhibiting the posture-maintaining tone. This is again illustrated in spastic hemiparesis in which the patient is unable to wink the eyelid of the affected side without closing the other one also, a disability which is invariably removed by cervical ramisection.

When muscular control is not present the rigidity of the lower limbs is part of a general condition in which the patient is the subject of extensor spasms resembling those of the decerebrate animal.

Postural tone may also be increased. On the other hand, a paralytic condition may be present with exaggerated knee jerks *et cetera*, due to a spinal injury at birth in which there has been a more or less complete physiological block.

The Choreic Type.

The choreic type is characterized by persistent choreiform movements when the patient attempts an active movement and in certain emotional disturbances. They may or may not be attended by an increase in the postural tone of the limbs and when the patient is entirely passive there may not even be increases in the ordinary reflex activity. There is, however, a rigidity which the patient imposes on his limbs apparently to minimize the effect of choreiform movement; thus, in an attempt to stand, the patient will maintain his lower limbs in a rigid position to save his equilibrium from being disturbed by choreic movements. Reflex activity may be increased. I have not observed any patients with congenital spastic paraplegia exhibiting athetoid movements.

THE SERIES OF CASES.

This report covers the effect of sympathetic ramisection in twenty-six consecutive cases of spastic paraplegia in which the operation of sympathetic ramisection was carried out on both lower limbs. All these cases were of the rigid type with the exception of one and this was of the choreic type. The accompanying table summarizes the details of the cases of the rigid type with the exception of No. XXVI., which is of the choreic type. The history and details of this case will be found under the heading "Congenital Spastic Paralysis Complicated by Chorea."

The Explanation of Signs Used in the Table.

In (1), (2), (3), (4), (5) and (6) the sign + signifies "Yes," the — sign "No". In (7) the + sign signifies normal mentality, the — sign signifies subnormal mentality and the mark ? indicated mainly a defect through lack of education. The + sign in (8), (9), (10), (11) and (12) indicates the degree of improvement after operation. In (13) it indicates a noticeable improvement.

AN ANALYSIS OF THE RESULTS.

The Postoperative Changes.

Walking.

An examination of the table (see pages 636-637) reveals that as regards walking there was a diminution of the disability of every patient with the exception of one and that one could walk before operation.

Before operation there were sixteen out of the series of twenty-six who could not walk alone; fourteen of these learnt to walk within six months after operation. In some instances the changes were remarkable. One patient, a boy of fourteen (see History XIX.), had never walked, except by swinging his lower limbs with the aid of crutches. Fourteen days after operation he was able to stand and began to walk in eighteen days. He could play tennis one year after operation.

Another patient (see History XXII.), a woman of twenty-three who had not previously walked,

walked with the aid of two sticks five weeks after operation and after a few months was able to walk well with one stick.

Equally dramatic changes have occurred in children. One whose lower limbs exhibited extensor and adductor spasms when he attempted to stand, stood alone in a few weeks (History XI.). He walked with the assistance of a stick in four months and at the end of twelve months could walk without any assistance at all.

One remarkable feature is the lack of necessity for mechanical support after operation. The patient mentioned above who was able to walk at the end of eighteen days, had elongated quadriceps muscles which prevented him fully extending his knee, although this could be done passively and easily after operation. He did not wear a support and the quadriceps gradually shortened after the contracture of the hamstrings had been treated surgically.

Ability to walk increasing distances without fatigue is a constant post-operative result.

This series has not been specially selected, but represents all the patients with spastic paraplegia from whom reports of progress could be obtained and on whom a bilateral operation was performed.

It is hardly necessary to say that the improvement in walking is relative. A patient who has had spastic paralysis or spastic paraplegia even for a short period of ten years, is not going to lose all trace of the disease after operation. On the other hand, if the operation is done early enough before contractures appear, it is possible to produce results in walking, so that the child acquires a gait that differs very little from the normal gait of a child of the same age. The operation of ramisection has never been claimed to be a cure for spastic paralysis, but that it removed an obstacle to the neuromuscular control and development of the individual.

Changes in Tone.

All of these patients exhibited changes which could be ascribed only to changes in tone. The rigidity of the lower limbs was invariably diminished and resistance to passive and active movement usually disappeared. A certain degree of lessening of resistance is an immediate result of operation even when the disease is long standing, but the range of movement through which resistance is less, gradually increases. The limitation of range of movement and the resistance to passive and active movement is to a certain extent structural. There are contractures in all groups of muscles controlling the joints and these are gradually stretched by active movements. It must not be thought that changes in tone do not occur immediately after operation, for the character of the knee jerk was invariably altered. The excitability of the knee jerk and of ankle clonus was also diminished in the majority of cases.

In a few instances on eliciting the knee jerk the relaxation time still remains prolonged, but it is always less than before operation. In one instance this appeared in one limb and not in the other. Even

BEFORE OPERATION.

Case No.	Age.	Able to Sit Up.	Able to Stand Alone.	Able to Walk Alone.	Able to Walk with Support.	Able to Balance on One Limb.	Was Patient Constipated?	Premature Birth	Meas.	Standing.
I	14	+	—	—	—	—	+	No		+
II	6	—	—	—	—	—	++	Yes		++
III	13	+	+	+	+	—	++	No		++
IV	28	+	+	—	+	—	+	?		+
V	5	—	—	—	—	—	+	No		+
VI	27	+	+	+	+	?	+	?		+
VII	5	+	—	—	—	—	—	No		—
VIII	28	+	—	+	+	—	—	Yes		+
IX	11	—	+	—	+	—	—	No		—
X	31	+	+	+	+	—	—	?		+
XI	7	+	—	—	—	—	+	No		+
XII	13	+	—	—	—	—	+	No		+
XIII	19	+	+	+	+	—	—	?		+
XIV	14	+	+	+	+	—	—	No		+
XV	3	+	—	—	—	—	+	No		+
XVI	11	+	—	+	+	—	+	Yes		+
XVII	3	+	—	—	—	—	+	Yes		+
XVIII	17	+	+	+	+	—	—	?		+
XIX	15	+	+	+	+	—	+	No		+
XX	30	+	+	+	+	—	—	?		+
XXI	15	+	+	—	+	—	+	Yes		+
XXII	23	+	—	—	—	—	+	No		+
XXIII	14	+	—	—	—	—	+	Yes		+
XXIV	15	+	+	—	+	—	+	No		+
XXV	9	?	+	+	+	—	+	No		++
XXVI	19	?	—	—	—	—	—	No		++
		(1)	(2)	(3)	(4)	(5)	(6)			(3)

when such a phenomenon appears, the patient can easily relax the contracted quadriceps muscle in contrast to the inability frequently present before operation. In some lesions, such as disseminated sclerosis, postures can undoubtedly become fixed through the activity of the medullated nerves and we also know that the complete removal of the sympathetic nerves to a limb does not diminish the patient's ability to maintain a posture voluntarily. In laboratory animals after the sympathetic nerves had been removed from a limb, the ability to maintain posture voluntarily in that limb only disappeared when the animal was anaesthetized. When partially anaesthetized the animals were unable to support weight on the limb from which the sympathetic nerves had been removed. When the sympathetic nerves were removed from both fore limbs or both hind limbs, these would collapse before the intact limbs when the animal was placed under anaesthesia. Although the sympathetic nerves are evidently concerned in the maintenance of posture, a posture can be imposed either by cortical or subcortical influence that is not dependent on sympathetic action. For example, in the decerebrate animal extension may appear in a limb after the excision of the lumbar sympathetic trunk. Similarly in disseminated sclerosis a very rigid limb may be found that is not permanently altered by sympathetic ramisection. In young children extensor and adductor spasm may reappear after ramisection when they are being examined by strangers. This is apparently due to cortical influence set in activity by emotion.

When the knee jerk has been unobtainable before operation, a greater range is conferred by sympathetic ramisection (see History XIX.).

Muscle tone yet awaits a definition. If we take Sherrington's view that it is a proprioceptive reflex action subserving posture and observe the alteration in the character of the tendon jerks following ramisection, we are forced to the conclusion that

muscle tone is largely dependent on the sympathetic nervous system.

Balance.

The endowment of balance or increased facility in balance in these patients is an invariable immediate postoperative result. It is a result produced by no other procedure and must be ascribed to an alteration in tone without sensory loss, leading to a lessening of rigidity in the patient's limbs. This is in my opinion the clearest evidence that the sympathetic is concerned with the maintenance of tone and more particularly with the aspect of tone involved in maintaining postures. The greater power of inhibition which appears after removal of the sympathetic nerves, is really an expression of the same change. The increased facility in balance accounts for the rapidity with which these patients learn to walk after operation. When the patients can walk before operation, balance on one limb is usually defective, but this is invariably improved. One patient expressed the result after operation in this way. "I am able to hop on 'buses and the boys can't push me over now."

As regards balance, the change may be summed up by saying that the result of the operative treatment is to enable the patient to change the state of contraction of his muscles quickly in response to the changes in the centre of gravity and this is undoubtedly an expression of change in tone.

The Performance of Active Movements.

Almost every patient reported increased facility in performing active movements and this is not due to the effects of education alone, though the results are enhanced by physical education. Some writers have contended that the effects attributed to the operation are due to postoperative 'neuro-muscular education. That this is not so is shown by the immediate gain in the range of active movements.

The first patient, mentioned above, affords an excellent example of this. Before operation he was

AFTER OPERATION.

Standing.	Walking.	Balance on One Lower Limb.	Ease in Performing Active Movements.	Constipation.	Mental Condition.	Other Improvements.	Time in Months Since Operation.
+	+	+	+	+	+	See History No. II.	35
++	++	++	++	++	..	See History No. III.	9
++	++	++	++	++	..	See History No. IV.	4
+	+	+	+	+	+	See History No. V.	14
+	+	+	+	+	..	See History No. VI.	17
+	+	+	+	+	..	See History No. VII.	28
+	+	+	+	+	..	Speech: History No. VII.	14
+	+	+	+	+	..	See History No. VIII.	6
+	+	+	+	+	+	Speech: History No. X.	20
+	+	+	+	+	+	See History No. XI.	17
+	+	+	+	+	+	See History No. XIV.	33
+	+	+	+	+	..	See History No. XVI.	14
+	+	+	+	+	..	See History No. XVII.	4
+	+	+	+	+	..	See History No. XVIII.	9
+	+	+	+	+	..	See History No. XIX.	30
+	+	+	+	+	..	See History No. XX.	18
+	+	+	+	+	..	See History No. XXI.	36
+	+	+	+	+	..	See History No. XXII.	7
+	+	+	+	+	..	See History No. XXIII.	39
+	+	+	+	+	..	See History No. XXIV.	21
+	+	+	+	+	..	See History No. XXV.	18
+	+	+	+	+	..	See History No. XXVI.	17
+	+	+	+	+	..	See History No. XXVII.	1
+	+	+	+	+	..	See History No. XXVIII.	9
(3)	(9)	(10)	(11)	(12)	(13)		

unable to move his lower limbs at all; immediately after operation he was able to flex them for about one-third of the range of his joints.

This was the immediate gain and was increased by postoperative treatment.

It is, however, necessary to remember that many of these patients have very poor neuro-muscular control on account of the disabilities imposed by their disease and it is unreasonable to ask that full movement should be immediately conferred on limbs in which movement was very defective and in which there are contractures limiting the range of movement. The improvement in active movement continues for years. The accompanying photograph illustrates improvement in the first patient over a period of three months.

Speed.

The speed of the patient's movement is also increased and this is more noticeable when the normal range of movements is present. The patient's movements are impeded by the excess of tone and contracture before operation.

Inhibition.

Another interesting and important acquisition is the power of inhibition conferred upon these patients after operation. For example, in the patient No. XVIII. extension of the knee in the recumbent posture could not be inhibited before operation, even when the flexion was assisted by gravity. After operation the patient could immediately relax the contracted muscle. This is a consistent result when the tone is great enough to impede normal movement.

In the bowel the sympathetic supply is regarded as an inhibitor of the activities of the vagus and pelvic nerves; in the voluntary muscles it has a similar action when it is affected by a "release of function." By its excessive activity it interferes with manifestations of the activities of the centres controlling movement. It is thus that the removal

of this sympathetic influence assists the education of the spastic paralytic.

Changes in the Condition of the Viscera.

In the series under consideration there were seventeen patients suffering from chronic constipation and of these thirteen were more or less relieved.

In one of these, No. II., the repeated use of the enema was necessary. The mother reported in response to a *questionnaire* that the child has been marvellously improved since operation. Enemata are no longer necessary.

These results are supported by the recent surgical advance by Dr. R. B. Wade in applying a specially devised ramisection to Hirschsprung's disease. In his patient, a child of nine years of age, the bowel had never been opened without an enema. After operation regular movements occurred without even the use of an aperient.

Vasomotor Changes.

Every patient in this series exhibited postoperative vasomotor changes. This is inevitable if the abdominal sympathetic trunk is divided. Mr. Bankart's results⁽⁷⁾ have been widely quoted⁽⁸⁾ as evidence of the uselessness of sympathetic ramisection, but I have not until recently had an opportunity of examining the details of his cases. He reviews the results in seven cases in four of which he detected no change in vascularity or muscle tonus. This absence of change in vascularity points inevitably to an error in technique, since changes in warmth and colour appear within a few minutes after section of the sympathetic nerve supply to a limb. The acute vasomotor changes are transitory, but there is a definite increase in temperature and freedom from vasomotor disorder persisting after ramisection. This has been noted in my cases over a period of three years and must be regarded as a constant phenomenon. This observation forms the basis for the treatment of Raynaud's disease by sympathetic ramisection.

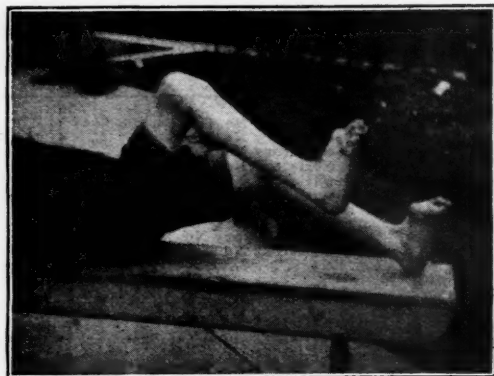


FIGURE II.

Deformity and Contracture.

It is hardly necessary to point out that the presence of deformity and contracture militates against a complete result in sympathetic ramisection. The hamstring and calf muscles are the commonest sites of contracture and in a number of patients whose histories are reviewed in this paper, tenotomy was carried out at the time when sympathetic ramisection was performed or at a later date.

The structural changes which are due to the increase in postural tone, have to be dealt with surgically before the full effect of ramisection is apparent. A misunderstanding on this point has led to adverse criticism.

Contractures do not return after sympathetic ramisection and in my experience this operation prevents their formation or reformation.

Reeducation.

The Physical Education of the Spastic Paralytic.—It must be clearly understood that the operation of sympathetic ramisection is not advocated as a cure for spastic paralysis. It merely removes a factor which has been interfering with the normal physical education of the individual and the essential treatment of spastic paralysis is education of the central nervous system. The term reeducation is wrong when applied to the spastic paralysis



FIGURE III.

of the congenital types and the sooner the term "muscle training" is abandoned, the sooner shall we get a clearer conception of the problem involved in the treatment of spastic paralysis.

It is true, however, that the treatment of paralysis of any variety has a peripheral as well as a central aspect, but in spastic paralysis the muscles themselves usually do not need attention; indeed treatment with massage and electricity only tends to stimulate the sensory end organs in the muscles and this inevitably leads to an increase in tone.

After treatment by sympathetic ramisection the danger of producing hypertonicity is not a consideration, but the muscles are already receiving an increased blood supply and the chief aim in treatment is to teach the patient how to use them. It is sometimes thought that the operation of sympathetic ramisection should confer full and normal use of the muscles immediately, but this is a misconception. We can no more expect the subject of a congenital spastic paralysis to walk immediately after operation than we can a new-born infant. The normal child takes a year or longer to acquire control over the lower limbs sufficient to enable it to walk and a similar time must be allowed for the spastic child.

Even when movements can be performed voluntarily in the lower limbs, control of the various groups is imperfect and the first consideration in education is to establish group control.

The minimizing of mental effort must next be aimed at. On account of the fact that the patient's muscles have always been opposed by the rigidity of their antagonistic muscles, his mental effort is exaggerated and this tends to the use of unnecessary muscles. This mental habit persists and must be counteracted by teaching inhibition in the groups whose contraction would render the given movement defective.

This subject will be dealt with more fully at a later date.

Wasting and Power.

In spastic paralysis disuse of the affected limbs leads to a lack of development and the limbs appear wasted. With this lack of development, power is often deficient. This is not specifically noted in the following histories.

After operation there is invariably an increase in power in the muscles of the limbs subjected to operation, as evidenced by the greater resistance to fatigue and the increasing distances patients can walk.

There is also a noticeable increase in the size of the limbs and parents have frequently stated that the increase has been so rapid that the clothes are too small after a month or two (see History XXV.). There has never been any instance of wasting following the operation of ramisection.

Sensory Changes.

Changes in sensation were absent in the cases recorded in this paper. It is very uncommon to find any appreciable change in sensation in congenital spastic paraplegia.

The Application of Sympathetic Ramisection to Spastic Chorea.

Spastic paralysis complicated by chorea or athetosis was formerly regarded by me as being not suitable for operation by sympathetic ramisection. The following clinical case illustrates, however, what may be expected in certain circumstances.

Case Histories.

No. XXVI.—Female, aged nineteen.

Complaint.—Inability to stand or walk. The patient can sit only with great difficulty and when supported by a chair back.

History.—The patient was a full-time child and was a "cross birth." She did not attempt to sit up until she was seven years of age and was always very unsteady. She could not talk until about fourteen years of age. She had always had irregular movements affecting all four limbs, face and tongue.

Condition on Examination.—The outstanding feature was the irregular choreiform movement affecting all the limbs and the face. There were no sensory disturbances, but the limbs were underdeveloped from disuse. The knee jerks were very difficult to obtain on account of the constant choreiform movements, but were exaggerated and indicated an increase in tone by the prolonged relaxation period.

The responses to the Babinski test were doubtful on account of the choreic movements.

A bilateral sympathetic ramisection was carried out in March and in April, 1926. There was an immediate change in tone and temperature in the limbs operated upon and since the operation the patient has noticed freedom from chilblains which affected her seriously before.

Six weeks after operation the patient found that she could stand and a few days later commenced to walk. She has steadily improved. She can now (December, 1926) stand unsupported for at least ten minutes and can walk alone for at least one hundred yards. She is still improving. There is also a very noticeable change in the incidence of the choreic movements. When the patient is not excited, these disappear from the lower limbs and the patient can readily inhibit any choreic movement that appears. The upper limbs have also improved since the operation on the lower limbs, though they are still the seat of irregular choreic movements. Since the operation increased function in the upper limbs has developed and the patient had learnt even to sew.

This result has been repeated in other cases, but these are too recent for publication. The explanation of the result is that the depression in tone renders a muscle much less liable to be affected by the choreic movements than one in which the tone is increased. The impulse causing the choreic movements, reaching a toneless muscle is lost in taking up slack before it can produce an effect on the joints controlled by that muscle.

No. II.—Male, aged six years, was a premature baby and mother said that "he was born black excepting the head." He started to talk at the age of ten months and sat up at two years.

Condition on Examination.—He was unable to stand or walk. He spoke well and did not appear to be retarded in mental development. The knee jerks were exaggerated and there was a slow relaxation. The lower limbs were spastic and the patient's control of movements was very defective. On attempting movements an adductor spasm appeared. The Babinski reaction was present in both lower limbs.

There were no sensory abnormalities.

The patient suffered with chronic constipation; it was always necessary to give him medicine and an enema had to be used frequently.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out for one lower limb on March 16 and for the opposite lower limb on April 14, 1926. This patient immediately began to improve and in July, 1926, he could stand alone for a short time. He could also balance himself and could walk with help. All his movements were performed much more easily. In

answer to a question with regard to the condition of the bowels his mother stated that she had had no trouble since the operation. At operation the colon was so dilated on both sides as to interfere with access to the sympathetic trunk. In addition to the sympathetic ramisection this boy had the *tendo Achillis* lengthened on both sides at the same time.

There was an immediate decrease in muscle tone and vasomotor changes appeared after ramisection.

No. III.—Male, aged thirteen and a half years. His mother stated that the patient had been run over by a waggon at the age of three. At that time he bled freely from the nose and mouth (probably from fracture of the base of the skull). The patient had deformity and inability to walk properly in both lower limbs.

Condition on Examination.—There were contractures of the hamstrings and of the calf muscles on both sides. The knee jerks were exaggerated and the relaxation time was prolonged. The Babinski reaction was present in both lower limbs. The patient could not stand up without support, but was able to walk if he used his upper limbs to aid him in his balance. He could not balance on either lower limb. He was constipated and at times a week elapsed without an evacuation of the bowels. Resistance to passive movements was felt through the whole range of his hip, knee and ankle joints.

There were no abnormalities of sensation.

Diagnosis.—Spastic paraplegia. There is some doubt as to the actual origin of the paraplegia, but this patient has been included amongst the congenital spastic paraplegias because of the similarity in symptoms and signs.

Sympathetic ramisection and lengthening of the hamstrings and *tendo Achillis* on both lower limbs were performed in August, 1926. This was followed by immediate improvement in the patient's condition. The patient found that he had no longer to drag his legs and he could walk without waving his upper limbs. He also found that he could walk much greater distances with ease and with less fatigue. He could also balance on either lower limb and was not easily pushed over. The lower limbs were filling out and the patient noticed himself that the speed of his movements was much greater than before operation; he has learned to run since.

Muscle tonus is much diminished. The knee jerks now show no sign of prolonged relaxation period, though the Babinski reactions are still elicited. The movements of the bowel are now normal and the patient has no need to take aperients, although he takes paraffin once a week because he was instructed to do so by the sister in the hospital. The patient noticed his first improvement about fourteen days after operation and in his opinion and in his mother's opinion he has improved "out of sight."

No. IV.—Male, aged twenty-three years, did not walk until six years of age. At the time of examination he walked with great difficulty and had to use a stick. He was left-handed and the left upper limb was stronger than the right. He had previously had tenotomies and neurectomies of the adductor muscles, calf muscles and hamstrings.

Condition on Examination.—The patient walked with a spastic gait and had contractures in both hamstring groups. A definite valgus deformity was present in the right foot and was present in a slight degree in the left foot also.

Reflex Activity.—The knee jerks were exaggerated and the position of extension was maintained for about ten seconds before relaxation began on the right side. On the left side the knee jerk was also exaggerated with a retardation of relaxation. The Babinski reaction was present in both lower limbs.

There were no sensory abnormalities.

His mentality was subnormal in slight degree.

Diagnosis.—Congenital spastic paraplegia.

Bilateral sympathetic ramisection and tenotomy of the hamstrings were carried out in September, 1925. This was followed immediately by vasodilatation of the lower limb and definite change in tone. The patient improved immediately after operation. This was noticed particularly with regard to balance and to the gradually increasing length of his stride. He improved so much mentally that he con-

sidered himself able to follow an occupation and sought employment, whereas previously he had depended upon an invalid pension. The prolonged period of retention of posture following the knee jerk also disappeared. Ability to walk greater distances than before operation and increased resistance to fatigue have also been gained by this patient.

No. V.—Female, aged five years, could not sit up, but spoke well. The mother stated that the child was born "black" and weighed only four and a half pounds. She was not premature.

Condition on Examination.—There was an adductor and extensor spasm of the lower limbs when the patient was held up. The patient could not sit up or stand. The reflexes were exaggerated, but there was very small excitation on account of the rigidity which affected both lower limbs. The Babinski reaction was present in both lower limbs. The patient was slightly constipated. There was an *equinus* deformity in both lower limbs, but this could be reduced passively. The sensation was normal.

Diagnosis.—Congenital spastic paraplegia.

A bilateral sympathetic ramisection was performed, one operation in April and the other in July, 1925. This was followed immediately by vasodilatation and perceptible lessening of tone. Improvement began at once and the patient learnt to stand and walk with assistance. Within a few months she was able to balance alone and her mother noticed great improvement with regard to the control of movements and ease of performing movements. Constipation was also relieved. There is now no rigidity in the lower limbs and the knee jerk is obtainable, but has not a prolonged relaxation phase. Her parents consider that the result is very satisfactory.

No. VI.—Male, aged twenty-seven years. The history was difficult to obtain, but apparently the patient had had difficulty in walking all his life. The patient could balance, but not on one limb; the control of groups in the lower limbs was present. The reflexes were exaggerated and there was a prolonged relaxation phase. The patient suffered from constipation. His mental condition was obviously subnormal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in July and August, 1924. There was a change in tone and in the performance of active movements after the operation, but in answer to a *questionnaire*, the patient did not admit any improvement with regard to standing, balance and walking. As this patient lives about eight hundred miles away from Sydney and returned home immediately after the operation, there had been no opportunity of verifying his statements. Vasomotor changes were definite immediately after the operation.

No. VII.—Female, aged five years, could stand, but could not walk or balance; when she attempted to stand there was a tremor affecting the feet and the feet went into plantar flexion. The knee jerks were exaggerated and extension was sustained, but the Babinski reaction was not elicited on either side. Constipation was present.

There were no abnormalities in sensation. This patient was normal in intelligence.

Diagnosis.—Congenital spastic paraplegia.

Bilateral sympathetic ramisection was carried out in September and October, 1925, and was followed by immediate depression of tonic activity and vasodilatation. The patient rapidly improved and in June, 1926, the mother reported that she was able to stand alone and clap her hands for about a minute during the last few months and able to walk well with support. Constipation was not improved, but there was a noticeable improvement in her speech. The improvement in this case was noticed about one month after the operation, when the mother thought the tightness in the legs seemed less.

No. VIII.—Female, aged thirty-eight years, complained of painful feet and stiffness affecting her lower limbs.

Condition on Examination.—Movements of the lower limbs were defective; she had no control of the lateral movements of her feet and dorsiflexion was restricted to less than a right angle. The knee jerks were exaggerated

and extension was sustained, the Babinski reaction was weak, but was elicited in both lower limbs. The patient could not balance on either lower limb, but could stand on both.

Diagnosis.—Congenital spastic paraplegia.

Bilateral sympathetic ramisection and tenotomy of the *tendo Achillis* was carried out in June, 1926. This was followed by immediate change in tone and by vasodilatation of both lower limbs. Three months later the patient reported that the stiffness had gone from her lower limbs. She was walking much more easily and was walking greater distances and had no pain in her feet. She had also noticed that she could sit up much more easily; she could stand on either limb and walked backwards very much better than she did formerly; her range of movement had increased also. Her feet had been much warmer than before operation.

Reflex excitability was diminished and on eliciting the knee jerk there was a noticeable absence of tone.

No. X.—Male, aged thirty-one, did not walk until eight years of age and since then has had difficulty continuously in walking. Balance was defective; he could not stand on either lower limb alone. Speech was defective also and the patient was subnormal mentally.

Previous Treatment.—He said he had had tenotomies done eighteen months before which enabled him to put his foot on the ground and straighten his knees, but he was not much improved as regards his walking.

Condition on Examination.—The reflexes were exaggerated and the relaxation time was prolonged. The Babinski reaction was present in both lower limbs.

Sympathetic ramisection was carried out on March 13, 1925. This was followed by an immediate change in tone and by vasodilatation. This patient noticed a gradual improvement in his condition after operation. He is now able to stand, walk and balance much better than previously and there has been a striking increase in the ease with which he performs his movements. Both his parents and he insisted that his speech improved after sympathetic ramisection had been carried out on his lower limbs.

No. XI.—Male, aged seven years, had never been able to walk, but could sit up and crawl on his knees. The right upper limb was also defective in control of movement and there was an external squint in his left eye.

Condition on Examination.—This patient could flex the whole lower limb, but group control was absent. He could not stand. Adductor spasm appeared on attempting to stand.

Reflex Activity.—The knee jerk was of small range, owing to the failure of relaxation in the hamstring muscles; no Babinski reaction was elicited in this patient. Contractures were present both in the hamstrings and in the calf muscles. This patient was mentally subnormal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in April, 1925. This was followed by an immediate diminution of tone and by vasodilatation in both lower limbs. The patient began to improve immediately and the parents were particularly struck with the improvement in his mental condition. Before operation he was troubled with chronic constipation, but this disappeared after operation. He very soon learnt to stand and at the end of four months he could balance quite well and walk with help. He usually walked with the help of a walking stick, but could walk alone at the end of twelve months. The range and ease in performing movements have also been strikingly improved. His lower limbs have been warmer. The vasomotor changes are evident and can be appreciated by the patient.

No. XIV.—Male, aged fourteen years, had had difficulty in walking all his life. He complained of inability to balance and of the shortness of his stride.

Condition on Examination.—His knee jerks were exaggerated and showed increase in tone. The Babinski reaction was present on both sides. The patient could walk and had a fair degree of control over the groups of his lower limbs, but there were contractures in his calf muscles. His mental condition was normal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in October, 1925, together with lengthening of the *tendo Achillis*. Improvement appeared soon after operation and the patient was definitely better in regard to standing and walking. His balance was so much improved that he discovered that his friends could not push him over as they used to. He found he could cross his legs and step up into trams, acts which were impossible before operation. His muscle tone was very much decreased and vasomotor changes were apparent both to the patient and to the observer.

No. XVI.—Female, aged eleven years, was a seven months baby and did not walk until she was seven years of age. She appeared to be getting worse; she could not stand alone.

Condition on Examination.—The patient had contractures in the hamstrings and in the calf muscles of both lower limbs. The knee jerks were active and extension was prolonged. The Babinski reaction could be elicited in both lower limbs. The mentality was normal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in February, 1926. This was followed by an immediate decrease in muscle tonus and by vasodilatation. The patient soon discovered that she could stand alone and that she could hold herself straighter. She felt a great freedom in her lower limbs and her feet were not cold. She can now put her shoes and stockings on, an act which was impossible before operation. Constipation has largely disappeared.

No. XVII.—Male, aged three years, could not walk, but could sit up; he was a premature child. When he attempted to stand, his foot went into the *equino-varus* position. He could balance on his knees, but could not stand.

Condition on Examination.—The lower limbs were rigid, but the patient was able to control the coordinate movements, such as flexion and extension of the lower limb. The knee jerks were exaggerated and there was an increase in tone as evidenced by the delayed relaxation, but the Babinski reactions were not elicited. His mentality was apparently normal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in July, 1924. In a report given in May, 1926, the mother stated that the patient could stand without support. She also noticed that he could get his knees much farther apart than before treatment. He is able to walk with support, although he is still far from normal.

No. XVIII.—In a female, aged seventeen years, there was a history of spastic paralysis from birth. Tenotomy of the adductors, hamstrings and *tendo Achillis* had been previously carried out. This had been followed by improvement, but the patient still walked with a spastic gait; her lower limbs were difficult to move and she could not balance on either lower limb. The range of movement was very poor in her lower limbs owing to the rigidity. The reflexes were exaggerated with a great increase in muscle tone. After eliciting the knee jerk the leg took about two minutes to return to the flexed attitude and the patient had not the ability to inhibit the reflex contraction of the quadriceps. There were no abnormalities of sensation. The mental condition was normal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in June, 1925. There was an immediate decrease in tone and definite vasodilatation appeared. This patient noticed an improvement in her gait about six weeks after the operation. There was also a gradual increase in the range of movement in her lower limbs and at the end of twelve months these were normal. She is now able to balance on either lower limb and can walk with a much longer stride, flexing the lower limb as she walks in contrast to the rigid gait before operation. This patient says that she has improved so much that her acquaintances refuse to believe she is the same girl.

No. XIX.—The mother of a male, aged fifteen years, noticed something wrong as he could not stand at the age of eleven months. He did not walk at the normal period;

in fact he had never been able to walk except with crutches and splints.

The knee jerks were not obtainable in this patient as the lower limbs were too rigid and the lengthening and shortening reactions were so evident that the limbs would stay indefinitely in whatever position they were placed. He had no range of active or passive movements in the lower limbs on account of the rigidity. The Babinski reactions were elicited on both sides. His mental condition was normal.

Sympathetic ramisection was carried out on both lower limbs in December, 1923. Immediately after the operation on the right side it was found that he could flex the limb for about one-third of the range of his joints. This was followed by improvement on the opposite side, but improvement did not reach a maximum until sympathetic ramisection had been carried out on the left side also. Fourteen days after his second operation this patient was able to stand, although he had never stood before without the aid of crutches and four days later he was able to walk. At the end of three months he had gained about half the range of his normal movements and could stand and walk quite well and balance on either limbs. There was a very great alteration in tone in the lower limbs of this patient and after operation the knee jerk could be obtained, but it was of a short, sharp character with a rapid relaxation. This boy had so far improved at the end of twelve months as to be able to run and play tennis. Before operative treatment was undertaken there was contracture in both knees which had led to elongation of the quadriceps muscle. When the hamstrings were lengthened, there appeared an abnormal amount of slack in the quadriceps muscle, but this has gradually disappeared and the patient is gaining more and more the upright posture.

The mental condition of this patient before operation could be described as normal, although he had not had the advantages of education, but after operation his whole outlook altered and he is now seeking an occupation.

No. XXII.—A female, aged twenty-three years, had never walked. There was a history of "wasting disease" a few months after birth and the patient sat up late. She was able to swing her lower limbs and perambulate with a pair of crutches, but she could not walk alone. She had no power of balance even on both lower limbs and had great difficulty in moving her lower limbs at all. Both feet showed a fixed valgoid deformity. The knee jerks were exaggerated with an increase in tone and the Babinski reactions were obtainable. Her mental condition could be classified as normal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in February and March, 1925, and the patient noticed improvement from the third day onwards. At the end of six weeks she was able to balance on both lower limbs and could walk with the aid of two sticks. She found that she could perform active movements very much more easily. She had also noticed increasing resistance to fatigue. In December, 1926, the patient described her improvement as continuing. She has better control over herself than she had last year and says: "Last year, when I wanted to go out, I would only walk a little distance and would have to rest, but now I can walk anywhere and do not feel a bit tired. I am also stronger in my lower limbs." Immediate decrease in tone and definite vasodilatation followed ramisection in both lower limbs.

No. XXIII.—Female, aged fourteen years, had previously had tenotomy and neurectomy performed and could sit up. She could stand for a minute, but could not walk. She could not stand on one lower limb and her balance was very defective on both lower limbs. She was also very constipated. Her reflex activity was exaggerated and there was a prolonged relaxation period in the knee jerk. The Babinski reaction was elicited on both sides. Her mental condition was normal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in June, 1925, and was followed by immediate decrease in tone and by vasodilatation. Improvement became apparent about six weeks after operation. In answer to a questionnaire six months later her mother stated: "She is gradually im-

proving and can now walk alone for about fifty yards. Her balance is still a little uncertain, but her exercises are more easily performed. With regard to her constipation, there has been a great improvement lately and her general health has improved very much since the operative treatment."

No. XXIV.—Female, aged fifteen years, did not walk until four years of age. She had difficulty in walking and wore the toes out of her shoes.

Condition on Examination.—The reflexes were exaggerated with evidence of increase in tone and the Babinski reaction was bilateral. The patient had very poor voluntary control over the groups in her lower limbs and could not walk without assistance. An *equino-varus* deformity was present in the right foot and in the left there was an *equinus* deformity. The patient was not mentally defective. She suffered from constipation.

Sympathetic ramisection was carried out in July, 1925. There was an immediate decrease in tone and vasomotor changes appeared in both lower limbs. There was also immediate improvement in her movements. She found she could walk longer distances and became less tired and improved also with regard to her balance and with regard to standing. The knee jerk is now characterized by an absence of tonic manifestations, but the Babinski reactions are still obtainable.

No. XXV.—Female, aged nine years, did not stand until three years of age and walked at three and a half years of age. She had improved since that time, but fell backwards. The patient had poor balance and did not speak clearly.

Condition on Examination.—She walked with a spastic gait and the tendon reflexes were exaggerated with a prolonged relaxation period. The plantar reflex was difficult to obtain, but was flexor in character. There were contractures in both hamstring groups. The patient could balance on both lower limbs, but could not balance on one. Her mental condition was subnormal.

Diagnosis.—Congenital spastic paraplegia.

Sympathetic ramisection was carried out in November, 1926, and by December 13 the mother had already noticed a great difference in balance. She can now balance on one limb; she can bend her knees in walking, which she could not do before operation. The parents also think that the child's speech is improving. A striking testimony to the change in tone was given by the mother, who said she could now easily bend the child's limbs when washing her, whereas this had always been difficult before the operation. The bowel action had also very much improved. The mother had also noticed an increase in size of the hips and lower limbs. Even in the short time since the operation her clothes had become tight around the hips.

References.

- (1) N. D. Royle: "The Operative and Re-educative Treatment of Spastic Paralysis," *THE MEDICAL JOURNAL OF AUSTRALIA*, February 15, 1919, page 125.
- (2) N. D. Royle: "A New Operative Procedure in the Treatment of Spastic Paralysis and Its Experimental Basis," *THE MEDICAL JOURNAL OF AUSTRALIA*, January 26, 1924, page 77.
- (3) A. Kuntz and A. H. Kerper: "An Experimental Study of Tonus in Skeletal Muscles as Related to the Sympathetic Nervous System," *American Journal of Physiology*, March, 1926, page ***.
- (4) E. D. Adrian: Discussion on the Sympathetic Innervation of Striated Muscle, *Proceedings of the Royal Society of Medicine, Section of Neurology*, August, 1926, page 15, and in *Brain*, March, 1926, page 135.
- (5) F. M. R. Walsh: Discussion on the Sympathetic Innervation of Striated Muscle, *Proceedings of the Royal Society of Medicine, Section of Neurology*, August, 1926, page 25.
- (6) John I. Hunter: "The Significance of the Double Innervation of Voluntary Muscle Illustrated by Reference to the Maintenance of the Posture of the Wing," *THE MEDICAL JOURNAL OF AUSTRALIA*, June 14, 1924, page 581.

BLOOD PRESSURE IN THE LEG IN AORTIC REGURGITATION.

By ERIC F. GARTRELL, M.B., B.S. (Adel.),
M.R.C.P. (Lond.),
Adelaide.

NORMALLY in the human being the blood pressure is the same throughout the entire body except for a slight rise in the legs, where the systolic blood pressure differs from that in the arms only by the amount necessary to compensate for the hydrostatic pressure of the column of blood, so that in the recumbent position the pressure in the arm equals that in the leg. This uniformity of pressure according to Faught is insured by "reflex vascular stimuli." Hill who was the first to comment on the difference between the arm and leg pressure in aortic regurgitation, published an article in *The Lancet* of February 14, 1920, but the subject seems to have escaped any subsequent detailed investigation. Hill quoted the experiment of the hutch rabbit being suspended by the ears. While in this position its ears blanch and it eventually has twitchings due to cerebral anæmia. This is because the hypotonic vasomotor system has allowed the blood to sag in the portal system. If the abdomen be squeezed the symptoms disappear, because the blood is returned to the heart and pumped through the brain. If a wild rabbit be thus suspended, no such ill-effects will result, because he has sufficient tone in his vasomotor system to insure proper filling of the heart in diastole.

In the cat and dog the carotid blood pressure is well maintained, but if an upper thoracic cord lesion be produced the vasomotor control is weakened and the blood pressure consequently falls.

In man, afferent nerves from the mouths of the *vena cava* and the ascending aorta bring about a reflex control of the heart and the vasomotor constriction so that the blood pressure is kept constant in the ascending aorta.

But the blood pressure in the legs varies with posture, for the vasomotor system is affected by stimuli from many sources. For example, some emotions increase the vasomotor constriction, while fear may cause dilatation and fainting. Change of position and the activity of any system also affect this most susceptible mechanism. In the normal person change of position is slightly over-compensated owing to the existence of some degree of vasomotor reserve, somewhat parallel to the field of cardiac response. By this over-compensation the leg blood pressure is raised above that in the arm to a slightly greater extent than is necessary to equalize the hydrostatic pressure of the column of blood. Absence of the normal vasomotor reserve is soon evident when the patient suddenly stands up after lying down, for a feeling of faintness or giddiness is induced.

This, then, is the explanation of some of those annoying symptoms which often persist for some weeks after a debilitating illness such as severe influenza or typhoid fever.

In aortic regurgitation one of the methods of compensating for the leak is stated to be increased action of the vasomotor system. This hypertonicity makes itself known by abnormally vigorous reaction to stimulation and further by a persistence of, this reaction after the stimulus has long ceased to act. This result can readily be demonstrated in the leg. The systolic pressure in the leg of the normal recumbent person is practically never more than fifteen millimetres higher than that in the arm. In aortic regurgitation, however, the difference between the two pressures may be as much as one hundred millimetres of mercury (Hill) and this difference is due to vasomotor hypertonicity. This may be proved by bathing the legs with hot water, when the pressure drops until it reaches the level of that in the arm.

Apart from this, certain symptoms such as giddiness and faintness have been ascribed to "vagal reflexes" and vasomotor activity, but they do not appear to have been investigated in relation to blood pressure.

The facts stated above about the blood pressure in the leg are quite interesting, but considered alone they do not help very much. It has been my endeavour to examine the facts at my disposal with a view to discovering (i) what relation exists between certain symptoms and the vasomotor reserve, (ii) what relationship these symptoms bear to cardiac failure, (iii) the prognostic value of an estimation of the vasomotor reserve.

Before entering on this discussion it will be profitable to study the tables found below (see Tables I and II).

The total cases have first been tabulated and then the cases of pure aortic regurgitation have been examined in a similar manner. In each of the two groups the same routine has been followed. First there has been a separation into groups according to ætiology and then these groups have been subdivided into male and female sections. After this has been done, each section is divided into subsections according to the decades in which the ages fall.

From these tables it is seen that in most cases the difference between the arm and leg pressure is greatest in young people, but in those suffering from aortic disease of indefinite ætiology it is greater in those over forty than in those younger. These points are brought out all the more clearly in those suffering from pure aortic regurgitation. This would indicate that some factor other than the vasomotor reserve is called into play in the production of the high difference between arm and leg pressures and that this other factor is more important in older patients. As many of these older patients were suffering from arteriosclerosis, it is quite probable that the thick and stiff vessel wall is in part responsible for the high reading in the leg. That is to say, the difference in the figures taken as representing the arm and leg pressures is greater than the difference between the actual blood pressures themselves.

TABLE I.—SHOWING AVERAGE SYSTOLIC PRESSURE IN THE LEG IN RELATION TO AGE, SEX AND CAUSE IN ALL PATIENTS WITH AORTIC REGURGITATION.

Patient.	Observation.	Age.									Total
		10-19	20-29	30-39	40-49	50-59	60-69	70-79	Under 40	40 and Over	
R ¹ Males	N ²	7	11	7	3	2	—	—	25	5	30
	A ³	14	24	35	47	53½	—	—	24	50	28½
	P ⁴	69	41	66	40	52	—	—	56	45	54
R Females	N	1	2	5	1	—	—	—	8	1	9
	A	16	22	37	42	—	—	—	31	42	32
	P	10	38	62	30	—	—	—	49½	30	47
R Total	N	8	13	12	4	2	—	—	33	6	39
	A	14	24	36	46	53½	—	—	26	48	29
	P	62	41	64	37½	52	—	—	54	42	53
S ⁵ Males	N	—	1	4	12	12	2	—	5	26	31
	A	—	24	37	45	55	62½	—	34	51	48
	P	—	30	56	49	47	57	—	51	49	49
S Females	N	—	—	—	2	1	—	—	—	3	3
	A	—	—	—	42½	59	—	—	—	48	48
	P	—	—	—	57	50	—	—	—	55	55
S Total	N	—	1	4	14	13	2	—	5	29	34
	A	—	24	37	45	55	62½	—	34	51	49
	P	—	30	56	50	47	57	—	51	49	50
I ⁶	N	—	1	6	5	5	5	1	7	16	23
	A	—	29	32	43	53	63	72	32	54	47
	P	—	55	42	38	53	64	80	44	53	51
All cases	N	8	15	22	23	20	7	1	45	51	96
	A	14	24	35	46	54	63	72	28	52	41
	P	62	41	57	45	49	62	80	52	50	51

¹ R = Rheumatic.

² N = Number of cases.

³ A = Average age of patients.

⁴ P = Number of millimetres of mercury by which blood pressure in the leg exceeds that in the arm.

⁵ S = Syphilitic.

⁶ I = Patient suffering from aortic disease of indefinite origin.

TABLE II.—SHOWING AVERAGE SYSTOLIC PRESSURE IN THE LEG IN RELATION TO AGE, SEX AND CAUSE IN PATIENTS WITH PURE AORTIC REGURGITATION.

Patient	Observation	Age								Total
		20-29	30-39	40-49	50-59	60-69	70-79	Under 40	40 and Over	
R ¹ Males	N ²	1	2	2	2	—	—	3	4	7
	A ³	20	37	45	53	—	—	33	49	42
	P ⁴	40	87	40	52	—	—	71	46	57
R Females	N	1	—	—	—	—	—	1	—	1
	A	20	—	—	—	—	—	20	—	20
	P	50	—	—	—	—	—	50	—	50
R Total	N	2	2	2	2	—	—	4	4	8
	A	20	37	45	53	—	—	28	49	39
	P	45	87	40	52	—	—	66	46	56
S ⁵ Males	N	1	3	9	12	2	—	4	23	27
	A	24	38	44	55	62	—	34	51	49
	P	30	63	43	48	62	—	55	47	48
S Females	N	—	—	2	1	—	—	—	3	3
	A	—	—	42	59	—	—	—	48	48
	P	—	—	57	50	—	—	—	54	54
S Total	N	1	3	11	13	2	—	4	26	30
	A	24	38	44	55	62	—	34	51	49
	P	30	63	45	48	62	—	55	48	49
I ⁶	N	1	6	2	4	5	1	7	12	19
	A	29	32	41	51	62	72	32	56	47
	P	55	42	35	61	60	80	44	58	53
All cases	N	4	11	15	19	7	1	15	42	57
	A	23	35	44	54	62	72	32	51	47
	P	44	56	43	51	61	80	53	50	51

¹ R = Rheumatic.² N = Number of cases.³ A = Average age of patients.⁴ P = Number of millimetres of mercury by which blood pressure in the leg exceeds that in the arm.⁵ S = Syphilitic.⁶ I = Patient suffering from aortic disease of indefinite origin.

The reason why the leg vessels should be affected more than those in the arm is that the former are exposed to greater strain, and so are more susceptible to degenerative change. From the fact that the difference between the arm and leg pressures is usually greater in young patients with aortic disease, it may safely be concluded that the vasomotor compensatory mechanism is a more important factor in the young than in the old patient. But this again is modified by the fact that in the younger patient the disease is less advanced than it is in the average patient over forty. Therefore it cannot be said that the vasomotor mechanism does not play an important part in compensation in early aortic disease commencing late in life, for the condition of the average patient over forty is often sufficiently far advanced for him to have early vasomotor failure and this may quite well account for the lower average difference between the arm and the leg pressures. These observations having been made, it may be concluded that although a high difference between the readings of the arm and leg pressures in aortic regurgitation does not necessarily mean a good vasomotor reserve, yet a low difference is strongly in favour of a deficiency in this mechanism. More important than this, however, is a series of investigations carried out on each patient, for variations in these readings probably depend almost entirely on variations of the blood pressure itself and so are an accurate guide to the efficiency of the vasomotor reserve. This question of a diminishing vasomotor reserve will

be discussed more fully in the section dealing with prognosis and failure.

Symptomatology.

The relative frequency with which some of the important symptoms occurred is clearly shown in Tables III to VII.

These demonstrate firstly the relative frequency of those symptoms of which the patients complained at the initial consultation (A). Secondly (B) is given an account of those symptoms which subsequently presented themselves. As in the other tables the subdivision according to age, sex and cause has been effected in these tables.

Dyspnoea.

It will be noted that in both groups of symptoms dyspnoea is easily the most important, but it is so often the first indication of a limitation of the field of cardiac response, that it bears little or no diagnostic significance in aortic regurgitation as distinct from any other cardiac lesion. Although this symptom is usually produced by exertion, it not infrequently occurs at night in the form of Cheyne-Stokes breathing which in its most severe forms produces such distress as to earn for it that most unfortunate name "cardiac asthma." This, however, is probably a toxic effect usually due to vascular degenerative changes in the kidney.

There is not space here for a full discussion of such an important subject as cardiac dyspnoea. Suffice it to say, therefore, that dyspnoea was com-

TABLE III.—SHOWING RELATIVE FREQUENCY OF SYMPTOMS IN RHEUMATIC MALE PATIENTS IN PERCENTAGES.

Symptom.	Patients with Normal Rhythm.						Patients with Auricular Fibrillation.					
	All Ages.		10-19.		30-39.		All Ages.		20-29.		50-59.	
	A ¹	B ²	A	B	A	B	A	B	A	B	A	B
Dyspnoea	70	86	71	94	81	100	93	100	100	100	100	100
Pain	49	66	36	43	56	75	54	87	0	75	75	100
Insomnia	9	45	77	43	0	56	47	63	50	75	50	50
Palpitation	30	65	28	58	44	81	28	87	50	100	0	50
Faintness	8	28	14	29	6	12	14	28	0	0	0	0
Cough	7	27	0	14	6	25	28	47	50	75	25	50
Vertigo	19	49	14	14	12	69	42	73	25	50	25	50

¹ A = Percentage at initial consultation.² B = Percentage at later stages.

plained of in 73% of all cases and was eventually present in 87.5%.

Pain.

Second in both lists comes pain and this fact is not surprising, for the association of aortic regurgitation with *angina pectoris* has long been a source of worry to physicians and their patients.

Cardiac pain is the subject of much dispute and fortunate indeed is he who can clearly differentiate between mere cardiac pain and true *angina pectoris*. While wishing to remain without this much contested field, I cannot pass without making one or two observations. Firstly, out of these 288 patients 203 suffered from some degree of pain, but not one of them complained of that sense of impending death of which one reads so frequently in textbooks. In most cases pain was in response to effort, at least on its first appearance, but in a few it subsequently appeared for less obvious reasons. If one accepts the interpretation of Mackenzie that pain when due to cardiac causes indicates an exhausted myocardium, then it is not surprising that it should obtain in so many cases of aortic regurgitation, for of the patients under consideration many suffered from cardiac failure, while in the specific and arteriosclerotic cases the nutrition of the myocardium and of the aorta (Allbutt) was adversely affected by the arterial degenerative changes, so limiting the field of cardiac response and rendering the muscle more susceptible to fatigue.

The majority of cardiologists hold the view that auricular fibrillation and heart block are due to an involvement of the myocardium affecting the genetic system, although Mackenzie appeared to believe that the lesion might single out the genetic system alone.

As pain has been attributed to myocardial exhaustion, it is logical to infer that this symptom should be more prevalent in those patients with a definite myocardial lesion, although of course it must be borne in mind that the muscle is in practically all cases and especially in the rheumatic group involved to some degree. This inference has been substantiated in this series, for while of the total the percentage of patients who complained of pain is 70, the figure in cases of auricular fibrillation is 81. In patients with the first stage of heart block, that is to say a long P—R interval, 75% complained of pain.

The relation of pain to blood pressure has also been examined in 133 cases, but it appears that little has been gained, for the figures are practically the same as the general average.

It has been suggested that the wave T in Lead II of the electrocardiogram is mainly due to functional activity in the left ventricle (J. Strickland Goodall). Were this correct, it would be expected that in cases of aortic regurgitation when the left ventricle is more overtaxed than any other chamber of the heart, an alteration in T2 would appear. In many of the early patients who were progressing favourably, T2 was found to be larger than usual. Possibly this indicated good left ventricular response to the extra strain. In failure and therefore in patients exhibiting pain I have searched for variations in this wave T2. Of the 203 patients complaining of pain 161 were examined by the electrocardiograph and of these 33 had a T wave in Lead II that was either small, flat or small and inverted. In several cases the size of the wave T2 increased as the case progressed and *vice versa*, but in order to make any definite statement of value in

TABLE IV.—SHOWING RELATIVE FREQUENCY OF SYMPTOMS IN FEMALE RHEUMATIC PATIENTS IN PERCENTAGES.

Symptom.	Patients with Normal Rhythm.						Patients with Auricular Fibrillation.	
	All Ages.		10-19.		30-39.		All Ages. ³	
	A ¹	B ²	A	B	A	B	A	B
Dyspnoea	72	91	67	75	63	88	93	93
Pain	52	63	42	67	54	84	73	80
Insomnia	6	32	8	17	6	37	27	80
Palpitation	50	80	42	42	63	94	54	86
Faintness	15	28	17	25	12	18	7	40
Cough	7	30	0	8	25	50	14	54
Vertigo	9	50	0	33	18	75	7	61

¹ A = Percentage at initial consultation.² B = Percentage at later stages.³ The percentages for each decade of female patients with auricular fibrillation were almost identical.

TABLE V.—SHOWING RELATIVE FREQUENCY OF SYMPTOMS IN MALE AND FEMALE SYPHILITIC PATIENTS WITH NORMAL RHYTHM IN PERCENTAGES.

Symptom.	Males.						Females.	
	All Ages.		30-39.		50-59.		All Ages.	
	A ¹	B ²	A	B	A	B	A	B
Dyspnoea	74	91	50	87	80	95	100	100
Pain	59	78	50	67	60	85	83	100
Insomnia	26	57	33	50	25	55	16	50
Palpitation	28	66	33	67	20	65	0	33
Faintness	2	26	0	33	5	25	16	67
Cough	7	53	17	67	10	50	33	67
Vertigo	35	55	17	67	40	75	16	67

¹ A = Percentage at initial consultation.² B = Percentage at later stages.

this matter a series of cases must be followed up systematically with the electrocardiograph. This, unfortunately, was impossible in this series owing to lack of facilities for dealing thoroughly with the multitude of out-patients.

Palpitation.

As is to be expected where the systolic blood pressure and the pulse pressure are high, palpitation is often troublesome, but beyond this it finds no place in this paper.

Insomnia, Faintness and Vertigo.

Insomnia, faintness and vertigo are present in aortic regurgitation much more often than in mitral disease, because the vasomotor compensatory mechanism is called into play to so great an extent. Therefore, in early cases when the vasomotor reserve is intact, much trouble would not be anticipated from these symptoms. Actual fainting is rare, but does occasionally occur from reflex vasomotor causes, sino-auricular block or true heart block. Usually, however, faint feelings are the source of complaint. From Table VII it is seen that at the time of consultation (not the time of onset) only 15% complained of insomnia, 8% of faintness and 21% of vertigo. Later, however, the figures increased to 50% insomnia, 27% faintness and 55% vertigo. That is to say, failure in aortic regurgitation is associated with these three symptoms.

Failure in Aortic Regurgitation.

In mitral disease death is usually brought about by cardiac failure, but in aortic regurgitation there are two methods of failure: (i) Myocardial, when the *post mortem* examination reveals a dilated heart full of blood, (ii) vasomotor failure, when the heart is found quite empty and not dilated.

TABLE VI.—SHOWING RELATIVE FREQUENCY OF SYMPTOMS IN MALES WITH NORMAL RHYTHM SUFFERING FROM CONDITIONS OF INDEFINITE ORIGIN, IN PERCENTAGES.

Symptom.	All Ages.		20-29.		50-59.	
	A ¹	B ²	A	B	A	B
Dyspnoea	66	91	55	78	55	100
Pain	46	68	33	89	55	67
Insomnia	14	59	0	44	11	78
Palpitation	20	57	33	78	22	33
Faintness	7	20	0	11	0	11
Cough	9	40	11	33	11	44
Vertigo	30	66	33	67	33	78

¹ A = Percentage at initial consultation.² B = Percentage at later stages.

TABLE VII.—SHOWING DISTRIBUTION OF SYMPTOMS IN THE TOTAL CASES.

Symptom.	At First Consultation.	At Later Stages.
Dyspnoea	209 cases = 73%	252 cases = 87.5%
Pain	150 cases = 52%	203 cases = 70%
Insomnia	44 cases = 15%	145 cases = 50%
Palpitation	33 cases = 32%	196 cases = 68%
Faintness	23 cases = 8%	79 cases = 27%
Cough	27 cases = 9%	113 cases = 39%
Vertigo	61 cases = 21%	158 cases = 55%

Vasomotor Failure.

Unless the vasomotor tone controls the peripheral field, the patient with aortic regurgitation cannot make any headway. The vasomotor reserve can be measured by estimating the difference between blood pressure in the arm and the leg. This being so, it can be shown that the symptoms insomnia, faintness and giddiness are all closely related to this reserve. With lack of vasomotor tone giddiness and faintness occur when the patient suddenly changes his position, as in standing after lying down. These symptoms also occur in many patients after exertion, but in this latter case they are due probably to a combination of vasomotor and myocardial weakness.

Insomnia.

Insomnia occurred in 50% of all cases and for these the average blood pressures are compared with the average blood pressures for the total cases in Table VIII.

Thus it is shown that the leg pressure more nearly approximates that of the arm than in the average case and the pulse pressure is slightly higher than normal. That is to say insomnia is probably due to a great extent to vasomotor failure and to a certain extent to the bumping owing to the high

TABLE VIII.—SHOWING BLOOD PRESSURES IN MILLIMETRES OF MERCURY OF PATIENTS WITH INSOMNIA AND OF ALL PATIENTS.

Observation.	Patients with Insomnia.	All Patients.
Average systolic blood pressure	151	152
Average diastolic blood pressure	71	75
Average pulse pressure	80	77
Average leg blood pressure	Arm blood pressure + 35	Arm blood pressure + 51

pulse pressure. As it is apparently difficult for patients to discriminate between faint feelings and minor degrees of giddiness and as both symptoms occur under similar circumstances, the cases that have been analysed are those of definite vertigo or giddy sensations, while faint feelings have been disregarded.

Of the cases of vertigo some were related quite definitely to change in posture and so have been considered vasomotor in origin. In twenty-two males with purely postural vertigo comparisons have been made between their leg pressure and those in the average patient with aortic regurgitation of the same age. Thus twenty-two patients with vertigo with an average age of forty-five had an average blood pressure in the leg which equalled the pressure in the arm *plus* 39. In all patients with an average age of forty-five the average blood pressure in the leg equalled the pressure in the arm *plus* 45. Therefore there is vasomotor insufficiency present and this probably causes the vertigo. In the other patients with vertigo, however, the average difference between the arm and leg pressures was only three less than normal. So in the majority of cases it is difficult to decide what proportion of the symptom is due to change of posture and what to exertion. That is to say, how much is vasomotor and how much myocardial.

It is found that insomnia, faintness and vertigo occur with and so indicate the onset of failure. In fact of the twenty-seven patients that died, at least fourteen suffered from vertigo and twenty-three from insomnia. This figure for vertigo is probably much lower than it should be owing to two factors. In the first place all patients were finally recumbent. In the second place not all patients were seen in their last illness. If the failure be mainly myocardial, pain and a rise of blood pressure followed later by a fall, are associated with these symptoms. But if the failure be mainly vasomotor, then the difference between the arm and leg pressure falls while the vertigo is mainly postural. Therefore, if periodic records be taken of the blood pressure in both arm and leg, assistance in prognosis is available, for a gradually falling systolic pressure in the arm, possibly following an initial rise, indicates myocardial failure, while a leg pressure that gradually approaches that in the arm indicates a failing vasomotor reserve, this in turn throwing more work on the myocardium and rendering it more liable to failure.

In order to recognize the exact part failure of the vasomotor reserve plays in the production of death, it would be necessary to follow a large series of patients throughout their early as well as throughout the latter stages of their illness. In this series of 288 patients at least twenty-seven died within twelve months, and of these not all came into hospital during their final illness.

Summary.

The difference between the systolic blood pressure in the arm and in the leg has been stated to be any-

where up to one hundred millimetres of mercury in aortic regurgitation, while in the normal person it is never more than fifteen millimetres of mercury. Tables have been prepared which show this to be true and which show, moreover, that the leg pressure differs more widely from that of the arm in young people than in old. This difference is due to vasomotor tone.

Failure occurs in two systems, the myocardial and the vasomotor, the symptoms varying accordingly. In myocardial failure the systolic blood pressure first rises and then undergoes a gradual fall. The symptoms are those which obtain in limitation of the field of cardiac response and associated with them is vertigo on exertion.

In vasomotor failure, however, the blood pressure in the leg gradually approaches that in the arm, while the distinguishing symptoms of this condition are vertigo and faintness, occurring with change of posture together with increased insomnia.

Insomnia and postural vertigo have been shown to occur when the vasomotor reserve, as measured by the difference between the arm and leg pressures, becomes diminished.

The problem for further investigation lies in the differentiation between vasomotor and myocardial failure and it has been demonstrated that important aid may be elicited from a periodical series of records of arm and leg systolic pressure in all cases of aortic regurgitation.

Acknowledgment.

In conclusion I wish to thank Dr. J. Strickland Goodall and Dr. John Parkinson for their many kindnesses in facilitating my investigations by allowing me to make full use of the patients attending their clinics at the National Hospital for Diseases of the Heart, London.

Reports of Cases.

MALARIAL THERAPY IN GENERAL PARALYSIS.

By REG. S. ELLERY, M.B. et B.S. (Melbourne),
Medical Officer, Mental Hospital, Sunbury;
Clinical Assistant to the Psychiatrist,
Melbourne Hospital.

It is not without a feeling of diffidence that I report the following cases of cerebral syphilis which have been benefited by malarial therapy; but this feeling, born of a knowledge of the extensive use of this method in other countries, is almost overcome by the gratifying results which have so far been obtained on the small scale in which the work here is necessarily carried out.

Whether the beneficial results of malarial therapy accrue from the direct production of malarial immune bodies in the blood of the paretic activating a reactionary defence mechanism or whether the malarial toxin is specific in its action as it is thought to be against the protozoan of Leishmaniasis, a very definite improvement is obtained in a large percentage of cases. Paresis is an organic disease attacking the cortex and the leptomeninges causing first an inflammatory and then a degenerative disturbance; it follows that the varying success which results from malarial inoculation, will depend entirely on the stage to which the disease has advanced at the time treatment is

commenced. Unfortunately definite cortical degeneration exemplified in dementia supervenes in the majority of cases which in mental hospitals are available for treatment; in such improvement is all that may be hoped for.

Of the six patients with cerebral syphilis treated with malaria which I reported in this journal last April, two were discharged and have remained well ever since and a third was on the point of leaving hospital. I have been able to keep in close touch with this patient and have lately had an opportunity of making a thorough examination. His case is one of striking interest:

F.W.M., on his original admission was thirty-six years of age. He showed definite exaltation, claiming to have an income of £5,000 a year and proclaiming that the doctor was the best man in the world next to the King, Jesus Christ and God. He was both loquacious and illogical and possessed no insight into his condition. He appeared in fairly good health, but his pupils were contracted and reacted neither to light nor accommodation. His knee jerks were absent. He showed slight Rombergism and his serum reacted strongly to the Wassermann test.

On July 2, 1925, he was given a malarial inoculation and after an incubation period of ten days developed malarial fever of an irregular quotidian type. The fever was terminated by quinine, after which slow improvement in both mental and physical condition was noticed. On examination eighteen months later his pupils reacted sluggishly to light; his knee jerks were present, although one was more active than the other and there was no trace of Rombergism. No reaction was obtained to the Wassermann test in either blood or cerebro-spinal fluid. His mental condition has remained normal since his convalescence and there has been no recurrence of his malaria.

The following four cases are quoted as examples of the improvement to be obtained in patients already far advanced in dementia.

J.B. was a bed-ridden general paralytic when I saw him first at the beginning of last year. His age was forty-two. His response to the Wassermann test was positive. He was confused and disorientated. He was very tremulous and his speech defect was so gross that one could scarcely understand what he was trying to say. He was at once inoculated with malaria and is now much improved. He is no longer tremulous. His articulation is clear with scarcely any slurring and he walks without difficulty. While exhibiting a fairly definite mental enfeeblement, he has yet changed from a hopeless bed-ridden patient to one who can look after his wants and conduct himself decently.

H.H.R. was admitted to Sunbury on May 29, 1923, with grandiose delusions, exaltation and defects of speech. He was boisterous, maintained that his life was insured for £50,000 and that he had given away £7,000,000. His pupils were unequal and his knee jerks were hyperactive. He was inoculated with malaria on July 23, 1925, and has since become quiet, well-behaved and rational to the limit of his enfeebled intellect. His physical signs have improved slightly and he has for the past twelve months been a useful worker in the hospital.

A.G.P. was admitted on February 12, 1926, a very demented parietic. His pupils were small and fixed; his knee jerks were exaggerated and he showed Rombergism. His habits were faulty. He was quite amnesic; his expression was fatuous and he evinced no interest in his surroundings. A course of malarial treatment was commenced on May 7, 1926, and after eleven successive rigors was terminated by quinine. He is now tidy and scrupulously clean and though his pupils are somewhat sluggish they react both to light and accommodation. He manifests no Rombergism and speaks plainly despite a slight lingual tremor. He is mentally enfeebled, but within the narrow limits of his intellect can converse rationally, enjoy a joke and take part in any amusement. He is a useful light ward worker.

J.F.R. was aged fifty-one on admission, unable to walk and so demented that he could give no account of himself at all. His knee jerks were hyperactive, his pupils fixed and his speech slurring. He was immediately given

malaria and improved rapidly. He became agile and obedient, anxious to help with the work of the ward. His habits were exemplary and when he died, a few months ago, it was after no long debilitating decline with bed sores and urinary retention and epileptiform seizures common to most parietics, but after a few days' illness brought about by bronchopneumonia.

Of the total ten patients with general paralysis of the insane and tabo-paresis whom I have treated in this hospital, three have been apparently cured, four have shown definite improvement in their physical and mental symptoms, one manifested no improvement whatsoever and two died during the treatment.

These results compare very favourably with those lately published in England in a report from the London County Mental Hospitals service,⁽¹⁾ where it is stated that complete remissions occurred in about one-third of the patients and considerable general improvement was observed in those patients in advanced stages who yet remained unfit for discharge. The most recent British textbook on psychiatry voices the conservative opinion that it is too early to form an estimate as to the value of malarial therapy.⁽²⁾ Yet, as it stands, there is no other form of treatment by which so large a percentage of remissions may be produced almost at will. A decade ago all authorities were agreed that the treatment of parietic dementia was hopeless. Antisyphilitic treatment had failed dismally. Lately many ingenious methods have been devised to combat the entrenched spirochete. But neither the artificial febrile reactions produced by *Bacillus coli communis* vaccine, the intramuscular injections of milk as practised by Stürche nor the introduction of salvarsanized serum through the *cisterna magna* have yielded results at all comparable with those obtained by malaria. And so there is no valid reason why every victim of general paralysis should not at least be given a chance, when every month's delay past a certain point becomes an irrevocable step down into the darkness of dementia.

References.

(1) "Preliminary Report from the London County Mental Hospital Service," *The British Medical Journal*, October 2, 1926, page 603.

(2) "Psychological Medicine," Craig and Beaton, 1926.

ILEAL INTUSSUSCEPTION IN AN ADULT.

By ALAN PRYDE, M.B., B.S. (Melbourne),
Honorary Out-Patient Surgeon, Launceston,
Public Hospital, Tasmania.

THE following case presents some very unusual and interesting features.

I was called to see a woman, aged forty-two, on the tenth day of the puerperium of her sixth confinement. She looked ill with anxious facies and lay in bed with her knees drawn up to her abdomen. She was complaining of severe abdominal pain, mostly in the left umbilical region. The pain came on at intervals of half an hour or less and lasted a few minutes only. In the intervals she felt comfortable. She gave the following history. She had always been healthy. During the past pregnancy she had been constipated at first, but in the later months her bowels acted regularly. Her confinement was normal. Since the confinement her bowels had not been open properly and she had had intermittent attacks of abdominal pain, mild at first but getting worse. During the last two nights the pain had been "excruciating." She had been eating ordinary meals and suckling her baby. For the last few days she had passed only "white mucus" by the bowel. She had vomited for the first time on the morning that I saw her.

On examination her temperature was subnormal, her pulse rate was 90 in the minute. Her abdomen on inspection appeared normal, but whilst under observation a

¹ The patient described herein was shown at a meeting of the Northern Division, Tasmanian Branch of the British Medical Association, on November 4, 1926.

pain developed and the typical undulating movement of distended bowel against obstruction became visible through the lax abdominal wall in the left supraumbilical region. Almost immediately all the abdominal muscles became tense and the whole phenomenon simulated a full term labour pain. She was urged to go into hospital, but refused until a large soap and water enema had been tried and proved ineffective. Six hours later on admission to hospital she was feeling much better. There was no abdominal distension, but moderate tenderness in left umbilical region where a small indefinite mass could be felt.

Examination *per rectum* disclosed the uterus well involuted and the pelvis contents normal. Her improved condition and the late hour decided me to postpone operation and directions were given that her pulse rate should be charted every hour.

About six hours later she passed *per rectum* fifteen centimetres (six inches) of gangrenous bowel and was feeling still more comfortable. From this on the pains were practically absent. She was given liquid paraffin and liquid diet for four days and then spoon diet. She improved daily and suckled her baby throughout.

Her bowels acted on the first day with an enema and thereafter twice a day naturally. The motions were kept soft with the paraffin given twice a day. She was kept in bed for fourteen days and then was taken home by her husband against our wish.

The portion of bowel was small intestine and showed no macroscopical abnormality.

The sequence of events was apparently an ileal intussusception commencing at or soon after the confinement with partial obstruction gradually increasing. On the tenth day obstruction was complete (only day vomiting occurred), but the gangrenous intussusception sloughed off and the condition was naturally cured.

The interesting features are: (i) Ileal intussusception is extremely rare, (ii) the rapid change in the condition of the patient from one of extreme discomfort and danger to comfort, (iii) the natural cure.

After History.

Two days after her discharge from hospital mild similar pains developed which gradually became more severe by the end of a week and she was readmitted to hospital. She was operated upon twenty-five days after her confinement. A matted mass of small bowel was found in the left umbilical region. Three-quarters of an hour was spent in separating the coils of intestine in an endeavour to find the lesion. Eventually the proximal and distal ends were found, both thickened and almost occluded. Both ends were resected and an end to end anastomosis done. During the separation of the adhesions faecal contents spilled on the operation area. Considering that the peritoneum had had four weeks to acquire immunity the abdomen was closed without drainage. The wound healed by first intention and there was no postoperative rise of temperature. She was discharged on the seventeenth day and three months later is quite well. She suckled her baby throughout.

Reviews.

OBSTETRICS FOR THE STUDENT AND THE PRACTITIONER.

PROFESSOR JOHNSTONE'S textbook of midwifery is exceedingly comprehensive.¹ Throughout its five hundred pages there is evidence of a careful sorting of the accepted obstetric facts and theories. The compacting of so much information has resulted at times in rather a breathlessness of style, but the author has the art of relieving a mere narration of facts with an apt analogy. In addition there is the generous provision of two hundred and fifty-eight illustrations in the text.

The more stable of the recent developments in obstetric work are included and we observe a useful discussion of

¹"A Text-Book of Midwifery for Students and Practitioners," by R. W. Johnstone, C.B.E., M.A., M.D., F.R.C.S.E., M.R.C.P.E.; Fifth Edition; 1926. London: A. and C. Black, Limited. Crown 8vo., pp. 536, with illustrations. Price: 15s. net.

the trial of labour in the management of contracted pelvis and also a detailed account of the conservative treatment in eclampsia. It is interesting to note an official recognition of the use of pituitrin other than after the completion of the third stage, also of rotation by forceps as an accessory method of managing an occipito-posterior presentation.

The management of the abnormalities is very well dealt with, although the reference to the use of forceps on the after-coming head is very half-hearted. This, however, is a minor point and there is a directness and conciseness that make this section very valuable for the student. It should also prove useful for his elder brother the practitioner. At the same time it is not to be expected that a book of this kind will contain the critical survey provided by larger handbooks on management.

In that important chapter "Forceps," it is a pity to see the weak statement "It is desirable to wear gloves if possible" and the cephalic application of forceps as distinct from pelvic is probably more useful in a difficult case than the author allows. On the other hand, there is a whole-hearted endorsement of the strong attitude regarding "high forceps." The Milne-Murray type of axis traction is that figured and described.

The popularity of this textbook is reflected in the appearance of this fifth edition. For the student it is very sane and sound and for the practitioner direct and compact. It leaves a very pleasant impression.

A GUIDE TO MEDICAL PRACTITIONERS AT SEA.

THE third edition of Dr. A. Vavasour Elder's book "The Ship-Surgeon's Handbook" has been published.¹ The medical practitioner going to sea for the first time as ship's surgeon feels lost unless he has somewhere to turn for information in regard to ship-board custom and his own place in the ship's company. The ship's surgeon is necessarily in sole charge of the medical department, if the term may be used, of the ship. At the same time he is an officer on the articles of the ship and as such is subject to the master of the vessel. Dr. Elder's book gives all the information required by the ship's doctor. The book is divided into seventeen chapters. Most of these are devoted to subjects on which information will be sought in vain elsewhere. The most important are those dealing with outfit and uniform, status and duties, passengers, fees at sea, medical practice at sea, ship etiquette and customs. The appendices are particularly valuable and contain regulations which must be studied by surgeons on the American, Canadian, Australian and South African services respectively. Not the least useful is a glossary of nautical terms. The medical practitioner who turns to the sea as a means of livelihood, will find this book indispensable.

ADOLPH KUSSMAUL.

THE publishers, Paul B. Hoeber, Incorporated, are to be congratulated on producing in book form a treatise on the life and time of Adolph Kussmaul by Dr. Theodore H. Bast.² The original paper was published in *Annals of Medical History*. The author has based his work on two sketches by Kussmaul, "Jugenerinnerungen eines alten Arztes" and "Aus meiner Dozentenzeit." In addition he has gained information from scientific papers by Kussmaul and his students. Adolph Kussmaul was born in 1822 at Greben in Germany and was educated at Heidelberg. He took an active part in the life of the University and its *Korps* organizations, the bodies which controlled the duelling that was prevalent in those days. Kussmaul began his professional life as a general practitioner, but his health could not stand the strain and he determined to use his savings in an endeavour to enter academic life.

¹"The Ship-Surgeon's Handbook," by A. Vavasour Elder, D.Sc., M.R.C.S. (England), L.R.C.P. (London); Third Edition; 1927. London: Baillière, Tindall and Cox. Crown 8vo., pp. 537. Price: 10s. 6d. net.

²"The Life and Time of Adolf Kussmaul," by Theodore H. Bast, Ph.D., with a Foreword by William Snow Miller, M.D., D.Sc.; 1926. New York: Paul B. Hoeber, Incorporated. Post 8vo., pp. 130. Price: \$1.50 net.

The path was not an easy one; his financial troubles were very real. Like so many other men who have achieved fame, Kussmaul owed much of his success to the love and encouragement of a devoted wife. Kussmaul is often credited with the discovery of the uses of a stomach tube. The author quotes several authorities to show that this is not so. The earliest mention found of this method of "extracting poisonous substances from the stomach" is by Alexander Munro, Junior, in 1797. Kussmaul invented an œsophagoscope and used it with success. He contributed much to medical literature. Having held teaching positions at Heidelberg, Erlangen, Freiburg and Strassburg, he finally retired and died in 1902, rich in years, in honour and in the affection of his contemporaries.

This book sheds much light on the medical practice of the earlier part of the nineteenth century. In it glimpses can be caught of the lives of many men whose names are household words in the world of medicine. The medical historian will read the book with great interest and will surely add it to his library.

HOSPITAL TREATMENT FOR THE TUBERCULOUS.

IN "Tuberculosis Hospitalization" by Godias J. Drolet a brief survey is given of the growth and value of sanatoria for tuberculosis in the United States and a scientific analysis attempted from available evidence.¹

A questionnaire of eleven headings including types, length of stay, results of treatment, was sent to all sanatoria and replies were received from institutions representing 53% of available beds. It was found that only in those sanatoria which were fully equipped, could patients be efficiently treated or induced to stay long enough.

Statistical tables are given comparing the improvement in the death rate with the increasing number of available beds and with the death rate in other countries.

Finally while recognizing the importance of other factors it is shown that there is a definite correlation between the number of beds available and the improvement in the death rate from tuberculosis.

CARE OF THE NORMAL CHILD.

"THE NORMAL CHILD" by Dr. B. Sachs is a delightfully interesting and useful little book, it is quickly and easily read and leaves a pleasant, refreshing and wholesome feeling.² It contains so much that is important, that the reader often wishes the matter had not been so condensed.

The author emphasizes the necessity for the care by the community of the normal child, as well as the abnormal and it is in this direction that the author intends the book to be of service.

Many points to which attention is called, are worthy of note. The author points out that people should not poison their minds with the "bogey of heredity," but remember the importance of environment. Thus, in infancy "the mental environment is created by the mother and the nurse" and at this age care should be taken not to overstimulate the child. At school age "the sensible discipline of the school is the greatest boon." "Let every son and daughter be given every consideration, but be sure they do not occupy the centre of the stage all day and all the year round." The author sets out very broad lines on which the youth can be guided through the adolescent period of rapid growth with the development of sex characteristics.

Later he says: "Varied and difficult as the problems are in developing the normal youth, they have been made more complex by the introduction and application of psychoanalysis, which analysis means nothing else than the attempt to find the sexual factor supposed to be the fundamental cause of mental and nervous phenomena." Thereafter he quotes many authorities, some who treat

psychoanalysis as a joke, others as a religion and another who says "that many people find ingenious falsehoods more attractive than simple truths."

With regard to the subconscious the author says "as a matter of practical importance especially in relation to normal youths, it is well to realize that we cannot and should not interfere unnecessarily with natural mental operations." "What Nature in her wisdom has consigned to the unconscious had better remain there until revived or recalled by natural psychic activities."

This book can be strongly recommended to school medical officers, educationists and parents. It shows clearly the dangers and many of the absurdities and contradictions in the doctrines of the psychoanalyst.

THE KAHN TEST.

EVER since the application by Wassermann, of the complement fixation method of Bordet to the diagnosis of syphilis, attempts have been made to simplify the serological diagnosis by the use of flocculation or precipitation methods. Hemolytic systems require careful management and though the Wassermann test has been improved in the way of sensitiveness, approved modifications have not simplified it. The cult of precipitation, therefore, has been much stimulated by a desire for economy of time and simplicity of technique.

Meinicke's methods commencing in 1917, the method of Sachs and Georgi in 1918 and the sigma test of Dreyer and Ward in 1921 have all had a vogue and in some centres one or other of these tests is still being used, but they have not met with general acceptance or displaced the Wassermann test.

For four years, however, and particularly in the United States, the precipitation method of R. L. Kahn has become favoured by many workers and the author has published a book of some two hundred pages, on the use of his test.³ The antigen is made from dried and powdered beef heart, by extracting four times with ether and with alcohol and the antigen consists of this extract plus six milligrammes of cholesterol per cubic centimetre. Falling quantities of antigen dilution are added to a constant quantity of inactivated serum and the results are read after a short period of shaking and incubation. Kahn interprets the flocculation that occurs with syphilitic serum, as the result of precipitation plus agglutination of the particles of the precipitate. Essential factors in the test are concentration of the reagents and instability of the antigen-saline mixture. If the latter is stable, flocculation tends to be inhibited and it is essential that a rapid reaction should occur in the Kahn method.

In comparing the Wassermann and the Kahn tests it may be said that the results obtained are very similar in any large series. Some workers consider that the Kahn reaction appears earlier than the Wassermann in early syphilis and disappears later in the serum of treated patients. This opinion is not unanimous, but in any case it must depend to some extent on the sensitiveness of the technique arranged for the demonstration of the Wassermann reaction.

Anticomplementary serum can be employed in the Kahn test. Minor disadvantages in the latter are that it is difficult to work with turbid serum and that the cerebrospinal fluid is not suited to the test. Kahn precipitates the globulin from the fluid with ammonium sulphate, centrifuges it and takes it up in one-tenth the original volume of salt solution, thereby concentrating the reacting substance in accordance with the principle of concentration in Kahn's method. Apart from the disadvantages mentioned, this precipitation or flocculation method has been doubtless a great boon in numberless laboratories in the United States and to a lesser extent in Australia and New Zealand. The book under review—a summary of numerous original papers by Kahn and his associates—is an admirable exposition of the method and a not unfair judgement upon its merits.

¹ "Tuberculosis Hospitalization," by Godias J. Drolet. Reprint from the *American Review of Tuberculosis*, December 1926, Volume XIV, Number 6.

² "The Normal Child and How to Keep it Normal in Mind and Morals," by B. Sachs, M.D.; 1926. New York: Paul B. Hoeber Incorporated. Post 8vo., pp. 111. Price: \$1.50 net.

³ "Serum Diagnosis of Syphilis by Precipitation: Governing Principles, Procedure and Clinical Application of the Kahn Precipitation Test," by R. L. Kahn, M.S., D.Sc.; 1925. Baltimore: Williams and Wilkins Company. Demy 8vo., pp. viii + 237.

The Medical Journal of Australia

SATURDAY, APRIL 30, 1927.

Surgeons.

THE vocation of a medical practitioner has a varying appeal to different individuals. The business man approves of this calling for his son because he sees youngsters within a few years of graduation prospering with substantial incomes from their practices. He does not inquire into the actual value of the young man's services, but assumes that in professional life as in commerce the public is discriminating and does not pay an excessive price for any commodity. The first or second year student is attracted by the dramatic setting of a surgical operation. He sees a master operator displaying his skill and dexterity before a small but admiring crowd of aspiring students. It looks so easy and in his dreams he places himself in the operating theatre rather than at the bedside or in the laboratory where there is no one to marvel at his achievements. He is bent on becoming a surgeon. The newly graduated practitioner realizes that in general practice he may be able to charge a half of a guinea or one guinea for a visit, but as a surgeon he will command large fees for operations. He forgets that it is not given to every one to be an artist, that long study, much experience and an apprenticeship under an eminent master are indispensable preliminaries in the training of a surgeon. He may be tempted to enter private general practice and "do his own surgery." If he adopts this expedient without having equipped himself adequately as a scientist and without having attained skill, technique and *savoir faire* in recurring emergencies, he will never succeed in becoming a surgeon. As a mere operator he may be able to persuade some of his patients that his services are valuable and in the course of time he confuses his surgical competency for surgical competence. It is not suggested that these strictures have universal application. Far from it. There are many

students who attach more importance to sound knowledge and its useful employment than to mere mechanical work. There are many practitioners who never cease to be students and whose services to their patients and to the public are invaluable. It is to be hoped that the real surgeon outnumbers the half-trained operator.

The College of Surgeons of Australasia has been founded because the public is incapable of discriminating in matters appertaining to medical practice. The members and fellows of the College will be recruited from among those whose training, experience and ability are unchallenged and who are known to their colleagues as men of unimpeachable integrity. It is unlikely that anyone possessing the necessary qualifications and attributes will be excluded from this newly formed organization. The names of the Founders will be accepted as a guarantee. That some practitioners who are not members or fellows, may possess ability and skill as surgeons is not denied. If these men seek the hall mark in vain, there will be some adequate reason. The chief function of the College is to enable the public to distinguish between surgeons and men who undertake operations and he who has adopted a short cut instead of following the long, difficult and tedious road of orthodox training, can have no cause for complaint if his name is not entered among those of the *élite*.

In its determination to raise the standard of surgical practice and to uphold the high traditions of the medical profession the College of Surgeons of Australasia may arouse the bitter resentment and opposition of a handful of men who have worked for their financial advancement rather than for the benefit of their patients. The constitution that has been framed, is so admirable that exception cannot be taken to it by any member of the medical profession. Those entrusted with the carrying out of the objects will certainly encounter difficulties. They will need to exercise courage and adhere to their principles without favour or hesitation. Australasian surgery has a fair name to guard. The College issues a challenge to all who dare to sully that fair name. Each man who practises surgery, must ask himself whether he is in fact

entitled to become a member. His conscience will provide the reply. If he knows that he cannot claim a place, he will be wise if he does not risk a refusal. But wisdom should lead him further. The ideal has been set up. Let him endeavour to earn the right of admission.

Current Comment.

LEPTOMENINGIOMA OF THE SPINAL CORD.

PROBABLY the most frequently encountered tumours of the spinal cord are sarcomata. Gliomata, gliomata, tuberculomata and hydatid cysts come next and psammomata and so-called endotheliomata form a not inconsiderable percentage. The term endothelioma has been applied, as the name indicates, to a group of tumours which are regarded as arising from the cells lining blood spaces, lymphatic tissues, subdural spaces and serous cavities. It was first used by Golgi in 1869; he applied it to psammomata, the gritty type of tumour associated with the *dura mater*. The use of the term became more general and, as Ewing points out, reached its acme with the appearance of Volkmann's study in which he endeavoured to establish the endothelial origin of mixed tumours of the salivary glands. The existence of endotheliomata is not, however, generally accepted. It is held by many that comparatively few of the so-called endotheliomata can be proved to arise from endothelium. Others again assert that endothelium never gives rise to tumours. According to Ewing the studies of recent years have served chiefly to emphasize the difficulty of separating true endothelioma from many typical sarcomata, lymphosarcomata, carcinomata and certain embryonal tumours. In these circumstances two courses are open to the morbid anatomist. Either he may follow Ribbert's plan of avoiding the tendency to discover endothelial qualities in many tumours of uncertain origin or he may accept the conception of Borst that the scope of endothelioma is probably very wide and includes many tumours whose nature has not been determined.

J. R. Learmonth has recently made an extensive study of the so-called endotheliomata of the spinal cord.¹ Learmonth's study has covered the whole range of the subject. He begins by discussing the nature of these tumours. Ewing, while admitting the deficiencies of the present state of knowledge takes the second of the two possible courses referred to above and regards these growths as endotheliomata. Bland-Sutton on the other hand discusses them under the heading of "epithelial tumours of the meninges." Learmonth points out that from a comparatively early stage in the study of cellular pathology there has been a minority of observers who have appreciated the true origin of these

tumours. He states that John Cleland, of Glasgow, was the first to draw attention to their close association with the arachnoid. Schmidt later recognized the likeness of the islands of cells found among the strands of the *dura mater* to the tufts of the arachnoid and also the close resemblance that these cells bear to the cells of an endothelioma. Bland-Sutton accepts the arachnoid origin of these tumours and more recently Mallory and Cushing, the former from the histological and the latter from the surgical side, have verified their arachnoid origin. Mallory regards the arachnoid as arising from the mesenchyme and suggested the name arachnoid fibroblastoma. Doubt has been cast on the mesodermal origin of the arachnoid and Cushing has used the term meningioma. Learmonth suggests a compromise until the embryological controversy is settled. He thinks that the term leptomeningioma denotes the source of the tumour without indicating its ultimate origin.

In view of the general acceptance of the arachnoid origin of leptomeningioma the importance of determining the origin of the arachnoid is obvious. There are two hypotheses. According to one view it arises as an epiblastic and according to the other it is a mesodermal structure. Learmonth attaches great importance to the work of Harvey and Burr. Harvey found that in the presence of an intact leptomeninx the *dura mater* healed without adhesion to the underlying membrane. This healing took place through a direct transformation of adjacent mesodermal cells into *dura* and not from ingrowth of mesothelium from the edges of the defect. He regarded this as indicating some fundamental histogenetic difference between these two structures. Harrison has shown that the cells forming nerve sheaths are derived from the neural crest and according to Learmonth nerve sheath is to nerve filament as leptomeninx is to central nervous system. Harvey and Burr tested the epiblastic origin of these soft tissues in a set of experiments which were most ingenious. In the first series the mid-brain, optic vesicle and the adjacent neural crest cells were transplanted into the region lying just anterior to the limb. This resulted in the complete investment by leptomeninx and *dura* of the transplanted neural tissue. In the second series of experiments portion of the cerebral hemisphere was transplanted into the same region after careful removal of neural crest cells. Subsequent examination revealed growth of neural tissue with no leptomeninx, the tissue being surrounded by an incompletely formed *dura*. Learmonth regards the appearances in the transplanted tissue as convincing. He admits that the work of Harvey and Burr has not been confirmed and points out that the technique required is so delicate that some little time must elapse before this is done. The embryonic arachnoid is at first arranged as a syncytial mass the meshes of which are comparatively small. The nuclei are oval and the greater part of the cytoplasm forms the connecting strands of the meshwork. When the cerebro-spinal fluid is liberated from the fourth ventricle of the brain, tension in the syncytium is increased and rupture of the deli-

¹ The British Journal of Surgery, January, 1927.

cate protoplasmic processes occurs. They become applied to the strands which have persisted, and ultimately become differentiated into the low cuboidal cells which line the trabeculae between the adult arachnoid and the *pia mater*. The *dura* is formed by a process of condensation in the mesenchyme adjacent to the arachnoid. According to the mesoblastic hypothesis of the origin of the arachnoid the syncytium around the neural tube is derived from mesenchyme. Its spaces become widened in the manner just described and the actual membranous part of the arachnoid is first apparent as a zone of condensation in the perineural mesenchyme. This zone represents the outer surface of the arachnoid and the inner surface of the *dura mater*. According to this view the leptomeninx is entirely a mesoblastic structure, its covering cells are essentially fibroblasts and they retain fibril-forming properties. In discussing these two hypotheses Learmonth describes the epiblastic hypothesis as attractive and he is prepared to accept it. He gives other reasons for accepting it in addition to the work of Harvey and Burr. In the first place many specimens of leptomeningioma have a papillomatous appearance such as is seen in epithelial tumours. In the second place the crushing of the central cells of a cell whorl in a leptomeningioma (which he describes) is analogous to the process which occurs in the centre of a cell nest in an epithelioma. In the third place the formation of fibrils in leptomeningioma should not be adduced as proof of their mesodermal origin, for the transition from epithelial to connective tissue type of cell may be traced in many tumours. Learmonth also points out that if the epiblastic hypothesis is accepted, pathologically similar growths can be traced to an identical ultimate origin—the cells of the neural crest. In this connexion it is interesting to note that he describes a case in which peripheral tumours of the von Recklinghausen type and a leptomeningioma occurred in the same patient. Another point to which Learmonth attaches great importance, is the arrangement of the arachnoid around the nerve roots as they leave the spinal canal. It was formerly taught that the arachnoid accompanied the nerve roots for some little distance and then became blended with the perineurium. Elman has shown, however, that the arachnoid accompanies the nerve roots for one or two millimetres, but is not in actual contact with them. It is reflected towards the cord and becomes continuous with the covering of the roots and blends with the *pia mater*. In this way there is no direct communication between the sub-arachnoid and perineural spaces.

Such are the points advanced by Learmonth in favour of the epithelial origin of the leptomeningioma, the endotheliomata of the other school. Bland-Sutton is quite definite in his views about the matter. Ewing on the other hand admits the deficiencies of present knowledge and states that his experience inclines him to regard the scope of endotheliomata as very wide and to accept the conception of Borst to which reference has already been made. The whole question depends on the place of origin of the arachnoid. Learmonth regards

the epiblastic hypothesis as "attractive." Something more than attractiveness is necessary, however. Confirmation of the work of Harvey and Burr would go a long way towards settling the matter. At the same time Learmonth has dealt a telling blow to those who regard these tumours as endothelial, and it seems likely that the epithelial origin may ultimately be accepted.

ACUTE PHLEGMONOUS GASTRITIS.

ACUTE phlegmonous gastritis may be described as a suppurative inflammation of the submucosa of the stomach. It may be a primary condition originating in the stomach wall or it may be secondary to a lesion in some other part of the body. It occurs in two forms, a circumscribed and a diffuse form. The diffuse is the more usual variety. It is characterized by an acute onset with a rigor followed by severe prostration. The symptoms may be those of gastritis followed by peritoneal inflammation or the gastritis symptoms may be absent. In the less severe circumscribed variety an abscess is formed in the submucosa. In the diffuse variety the submucosa is the layer chiefly affected. The wall of the stomach becomes much thickened owing to the submucosal changes. These consist in an infiltration with sero-pus or pus, sometimes with almost a jelly-like or oedematous appearance. MacAuley has stated that the submucous changes do not extend beyond either cardiac orifice or pylorus, but Chvostek holds that infiltration or dissection may occur along the submucosa of the duodenum or up into the oesophagus.

K. A. Meyer, W. A. Brams and C. Guy have recently reported two cases of this interesting condition.¹ The first patient had pneumonia due to a streptococcus. Gastric symptoms became manifest and the patient died nine days after admission to hospital. Cultures taken four hours after death from the submucosa yielded a streptococcus. Meyer, Brams and Guy point out that this case supports the view that phlegmonous gastritis may result from a generalized infection or by spread from some other focus. Their second case was also of the diffuse variety. At autopsy pneumonia was discovered in both lower lobes in addition to carcinoma of the stomach. No bacteriological examinations were made. Meyer, Brams and Guy conclude that phlegmonous gastritis may be dependent on some local process in the stomach wall, especially if there is a low gastric secretion. This is in accordance with the view of Anderson and Sundberg who claimed that low gastric secretion allowed the causative organism to gain a foothold in the wall of the stomach. Meyer, Brams and Guy also refer to the statement of Brumm that 219 cases of this condition had been reported in the literature up to 1925. It is thus obvious that the condition is not so rare as is supposed. The possibility of its occurrence and the necessity for early diagnosis must therefore be remembered.

¹ *Surgery, Gynecology and Obstetrics*, March, 1927.

Abstracts from Current Medical Literature.

THERAPEUTICS.

Hepatic Extract.

H. R. HARROWER (*Medical Journal and Record*, July 21, 1926) discusses the hepatic depressor principle and its oral administration in hypertension. Hepatic residue has been administered to some hundreds of patients by mouth and definite reduction of blood pressure has occurred in a large number. Harrower considers that this liver extract contains a true endocrine principle from the liver, which acts chiefly on the liver and helps that organ to destroy toxins brought by the portal vein from the intestine. This extract is thought to act in a different manner to histamin or the nitrites as mentioned above. In many cases of arteriosclerosis and renal disease this substance has no effect on the blood pressure. Nor does it reduce blood pressure in normal individuals. For example fifty-six medical students to whom it was administered over a period of ten days were unaffected. Patients with a blood pressure of one hundred and eighty to two hundred and twenty millimetres of mercury manifested a reduction of twenty to sixty millimetres in systolic blood pressure. In forty ambulatory patients the reduction of systolic pressure averaged twenty-nine millimetres and of diastolic twelve millimetres. The effect of this liver extract is not permanent, but is similar to that of other endocrine substances such as thyreoid and insulin.

Anterior Pituitary Lobe.

H. G. BECK (*Endocrinology*, May-June, 1926) records some results of treatment with anterior pituitary lobe substance. Reasoning from the effects of partial extirpation of the anterior lobe, he considers that this substance should be of use in conditions arising from insufficiency, namely retarded skeletal growth, pituitary obesity, delayed puberty, genital hypoplasia and hypophyseal cachexia. He states that oral administration has been shown to have a distinct therapeutic value in such conditions and he advises the use of a fresh substance (anterior lobe) in doses of 0.3 to 0.6 gramme (five to ten grains) a day alone or combined with thyreoid extract in doses of 0.03 to 0.12 gramme (one-half to two grains) thrice daily. He refers to twenty-six cases of pituitary fat dystrophy, in which definite redistribution of body fat occurred after such treatment and he describes cases of pituitary dwarfism and delayed puberty in which splendid results were obtained. Absence of hair on the body and pubes, maxillary prognathism, soft, delicate skin, infantile voice, genital hypoplasia, delayed epiphyseal union and deformity of the *sella turcica* are the criteria of anterior lobe deficiency quoted in one

instance. Both adult and infantile pituitary dystrophy associated with obesity, delicate skin and defective sexual functions are said to improve with the administration of anterior lobe substance. Epileptic seizures in similar cases are reported to have been cured in this way. If thyreoid is used, it is suggested that 0.015 to 0.03 gramme (one-quarter to one-half grain) be given twice a day for two weeks and the effect noted before pituitary treatment is started. Oral administration of anterior pituitary lobe is preferred to hypodermic medication mainly on the grounds of simplicity. Treatment is usually given for six to twelve months.

Syphilis.

V. J. WILE (*Annals of Clinical Medicine*, June, 1926) discusses the "Wassermann fast" patient. He points out that in many patients suffering from syphilis of long standing no amount of treatment will change the positive result of the Wassermann test. A moderate proportion of patients with recent syphilis can expect to have a reversal of their response to the Wassermann test. Those patients in whom treatment is not instituted in the early months of the infection, are less likely to be influenced in their serologic reaction and are more apt to develop into the so-called "Wassermann fast" type of patient. In a third group of patients when there is present extensive parenchymatous damage, cardiovascular, hepatic, cerebral or of the spinal cord, it is often impossible to bring about a reversal and such a reversal is not the criterion of cure. Similar results are obtained with the cerebro-spinal fluid. The "Wassermann fast" patient, a large group of latent and late syphilitics, suffer from over-treatment and are damaged for this reason. The Wassermann reaction should not be regarded as anything more than an unimportant symptom of syphilis and treatment should be directed to the disease as it manifests itself clinically and to the patient with due consideration of possible harmful effects.

"Novasurol" and Ammonium Chloride.

J. C. HOSSACK (*Canadian Medical Association Journal*, November, 1926) discusses the diuretic action of ammonium chloride and "Novasurol." Calcium chloride has been shown to reduce dropsy in some cases of nephritis and ammonium chloride has a similar action, being in fact more palatable and in virtue of urea formed from the ammonia more strongly diuretic. For the latter reason it might seem to be contraindicated in nephritis with urea retention. Five grammes of ammonium chloride were given thrice daily, the drug being freshly dissolved in one hundred and twenty cubic centimetres of water. Diuresis commenced after twenty-four hours and reached the maximum in four to six days. In the treatment of patients with failing hearts digitalis is helpful. "Novasurol"

was introduced as a remedy for syphilis, it is the double salt of sodium oxymercuriochlorophenoxyl acetate with diethylbarbituric acid and contains 33.9% of mercury. It has a definite diuretic action in pure cardiac dropsy and also in cardionephritis with edema. Acute glomerulonephritis and enteritis are contraindications. Its mode of action is not certain. "Novasurol" is supplied in ampoules containing 1.2 cubic centimetres of a 10% solution; 0.5 to 2 cubic centimetres are given intramuscularly every three to seven days; in urgent cases daily injections may be given. Action begins in two hours and the drug is best given in the morning; its action ceases in twenty-four hours. Five cases are quoted in which treatment was given as above outlined; in three ammonium chloride and digitalis relieved the edema, and in two "Novasurol" was used in addition with success. All five patients suffered from pure cardiac dropsy.

Ultra-Violet Ray Treatment.

J. CROCKET (*Tubercle*, October, 1926) has recorded the results of ultra-violet ray treatment upon seventy-two patients suffering from tuberculosis. He goes no farther than to say that the results are not discouraging. One of the patients, suffering with extensive fibrocaseous disease with involvement of the hilar glands and the bowel, died shortly after commencing treatment. Of the remaining patients 85% are said to have improved. The general condition and mental attitude improved in 92%. The cough became less severe in 70% and in 54% the sputum was definitely less in amount. It was common to observe a disappearance of wheezing. An increased appetite was observed in many patients with abdominal tuberculosis. No constant increase in weight could be noted. A common feature was that the patients slept much better. Over exposure to the rays may cause rises of temperature, but moderate doses are never responsible for them. The treatment does not seem to cause hæmoptysis. The treatment cannot be regarded as a substitute for sanatorium treatment, nor for proper rest. It is merely an accessory in the therapeutics of tuberculosis, possibly of benefit because of germicidal or hyperæmic effects. During exposure to the ultra-violet rays the patient should lie perfectly still, especially in the presence of active disease. The treatment should not be employed when the disease is rapidly progressive, when there is much destruction of tissue, severe cachexia, sepsis or pyrexia.

"Sanocrysin" Treatment of Pulmonary Tuberculosis.

W. NEUMANN (*Wiener Medizinische Wochenschrift*, December 4, 1926) relates his experiences with "Sanocrysin" in the treatment of pulmonary tuberculosis. One patient out of twenty-eight died from exfoliative dermatitis caused by the drug. Pyrexia was common, also albuminuria and casts, diarrhoea and stomatitis. The

so-called antitoxic serum which Moellgaard used to prevent these symptoms, did not prove successful; in fact patients complained more when it was used than without it. Use of the drug is contraindicated if albuminuria be present. Neither should it be given to patients who improve with tuberculin, sanatorium treatment or artificial pneumothorax. The best results were obtained in stationary or progressive bilateral cavernous lesions, especially in those cases in which pneumothorax could not be performed owing to pleuritic adhesions. "Sanocrysin" was first given intravenously in doses of 0.1 gramme. If no definite temperature reaction, diarrhoea or albuminuria resulted, 0.25 gramme was given in four to five days followed by 0.5 and 1 gramme. The latter dose was repeated at intervals of a week until six grammes in all had been injected. Eleven out of twenty-eight patients had to relinquish the treatment temporarily because of general loss of condition, dermatitis, parotitis and a metallic taste in the mouth. The sputum rapidly cleared up and the weight improved, though not to the same extent as are claimed in the Danish records. No complete recoveries have yet been noted and in many of the cases could hardly be expected. Many of the best results were followed by recurrence of fever and the appearance of bacilli in the sputum within five to eight months. The patients are now undergoing a second course and it is impossible to tell whether the cure will be permanent or not.

NEUROLOGY.

Disseminated Sclerosis.

JAMES TAYLOR (*Brain*, March, 1926) in a short paper on the prognosis of disseminated sclerosis emphasizes the desirability of complete rest as soon as the condition is recognized, for he thinks that everyone with experience of this disease will acknowledge that complete rest in the early stages is likely to have a favourable influence on the course of the illness. Incidentally he supports the view that the activity of the poison in this disease is favoured by strain or accident.

Seven Cases of a Special Family Disease.

GUSTAVE ROUSSY AND GABRIELLE LEVY (*Revue Neurologique*, April, 1926) give as the chief features of a special family disease, the appearance usually in childhood of bilateral claw foot with occasional moderate atrophy of the small muscles of the hands, total absence of the knee jerks always present, variable cutaneous reflexes, doubtful plantar responses which are never extensor, nystagmoid jerks in one instance and imperfect sphincter control (bed wetting) in three patients, all young children. It is concluded that the disease is distinct from Friedreich's disease because there are no signs of affection of cere-

bellar or pyramidal tracts and that to the peroneal type of muscular dystrophy there is nothing more than a superficial likeness.

Infantile Dementia Præcox.

G. HALBERSTADT (*Revue Neurologique*, September, 1926) points to the accepted truth that the usual age period for the onset of dementia præcox is between the fifteenth and thirtieth years and makes the observation that there are cases more truly precocious which arise in infancy. The condition escapes diagnosis because the patients are not seen by specialists and are mistakenly regarded as suffering from idiocy or imbecility. The symptoms may be very similar to those appearing in ordinary cases, and the following from Kraepelin's clinic may be taken as an example. A boy, with some hereditary loading was normal to the age of three years. Thereupon arrest and retrogression of development occurred with progressive loss of interest in environment and negativism. He was difficult and disobedient and refused food. Various stereotyped, rhythmic movements took place. Echolalia and impulsiveness were present, the condition remaining unchanged for close on four years. Katatonic, hallucinatory and hebephrenic states are described.

Facial Paresis in Spinal Tumours.

W. M. KRAUS AND N. E. SILVERMAN (*Journal of Neurology and Psychopathology*, October, 1926) state that paresis of the infrabuccal portions of the facial musculature may occur in association with tumours of the upper four cervical segments and *per contra* no such paresis appears in tumours of the lower four cervical segments. In two cases among a series of ten high cervical tumours which were examined at autopsy, one intramedullary and one extramedullary, the seventh nucleus was normal and there was no sign of abnormality in its region, nor above the *foramen magnum*. In seven tumours five of which were intramedullary and in two cases, both extramedullary, this paresis was present. In three cases, one intramedullary and two extramedullary, the paresis was absent. The phenomenon is probably due to disorder of a reflex pathway originating in this portion of the spinal cord and extending to the facial nucleus.

Vestibular or Labyrinthine Encephalitis.

RICHARD IRVINE POSTON (*Brain*, December, 1926) concludes that in epidemic encephalitis there is a definite affection of the vestibular apparatus and its connexions. This may give rise to errors in equilibration, spontaneous nystagmus, abnormal induced nystagmus or abnormal Babinski-Weil reactions (the Babinski-Weil reaction is based on the ability of a normal person to walk and maintain his balance in the dark or with closed eyes). This vestibular syndrome may occur alone or with symptoms, such as

strabismus, ptosis *et cetera*, pointing to involvement of adjacent or connected nuclei or with tremor, rigidity and myoclonus, pointing to involvement of putamen and *globus pallidus*. The syndrome may be present at the onset or during the acute stage of the disease or it may persist as a residuum and its occurrence is probably much commoner than the literature on the subject would appear to show. Interference with vestibular function can account for many, if not all the ocular phenomena of encephalitis. The separation of a vestibular and a pallidal syndrome serves to make a useful basis upon which can be built an anatomical classification to include all cases of epidemic encephalitis. The possibility of a previous, current or impending attack of encephalitis should always be considered seriously in the differential diagnosis of conditions accompanied by disordered equilibration. If it be accepted that the virus of encephalitis enters *via* the nasal mucosa and the olfactory nerves, there is also another possible path along which it may travel to the brain. Like the viruses of measles and scarlatina, it may pass from the naso-pharynx along the Eustachian tube to the middle ear, where it may or may not give rise to pain and tinnitus. From thence it can pass along the eighth nerve to the vestibular nucleus, for which it has been shown to have a definite affinity in rabbits. The prognosis of vestibular encephalitis is very uncertain. The lesion is probably progressive and a recurrence of symptoms from time to time seems inevitable. There is no specific treatment.

Syphilis and Mental Disease.

H. FERGUSON WATSON (*Journal of Mental Science*, October, 1926) writes that the rôle of syphilis in the causation of mental disease is of such importance that any investigation of the subject likely to elicit further data is worth undertaking. Such investigation is made reliable by the fact that the value of the Bordet-Wassermann reaction as a test is generally undoubted. This paper records results obtained from a study of two hundred and ninety cases in the Manx mental hospital and three hundred and eighty-eight cases in the Argyll and Bute District Asylum. The specimens of serum were examined by the Bordet-Wassermann test and by the more recently introduced flocculation test. In the Manx hospital the male patients gave positive results in 16.31% and the female in 15.43%. In the Argyll and Bute hospital the figures were 21.08% for the males and 16.25% for the females. The investigation suggests that while syphilis in mental hospitals is more common among men than women, there is not such a wide difference as was at one time supposed. It also demonstrates that the incidence of syphilitic infection, as regards the inmates of these two hospitals, is much greater than had been suspected. The hope is expressed that similar reports from other hospitals may be made available.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held in conjunction with a meeting of the Brisbane Hospital Clinical Society at the Brisbane General Hospital on February 4, 1927, Dr. H. V. FOXTON, the President, in the chair.

Sir John Goodwin.

Dr. H. V. FOXTON mentioned that a cable message of congratulation had been sent to Sir John Goodwin from the Branch on his appointment as Governor of Queensland.

Sarcoma of the Buttock.

Dr. A. E. LEE exhibited a patient suffering from a sarcoma of the buttock. Dr. Lee stated that this patient, a man of thirty years, had come under his care ten days previously. An accompanying letter from his doctor gave the following relevant information. Nine years previously he had contracted syphilis and on discovery of the primary sore he had had four months' oral anti-syphilitic treatment. Eighteen months later ulcers had appeared on the legs and more intensive treatment was carried out, including intravenous injections. For the next five years he had appeared to enjoy perfect health. Two years previous to the meeting, however, he had complained of "sciatica" and this pain in the left buttock and thigh had persisted off and on ever since, various treatments by different medical men producing no permanent improvement. Two months before admission to hospital a lump the size of a saucer had been discovered in the left buttock below the posterior half of the iliac crest. A Wassermann test of the blood had been carried out and no reaction was obtained. Meanwhile, two weeks' intensive anti-syphilitic treatment was tried, but the lump grew larger and became tender. Besides the points already mentioned, two other facts were elicited. Firstly, the patient's weight had decreased by 12.6 kilograms (two stone) in the previous two months and secondly, the lump was said to have varied considerably in size, the periods of greatest size coinciding with increased local tenderness and in one instance with an attack of shivering. Examination had revealed a large, hard, nodular lump in the upper half of the left buttock. It did not appear fluctuant at any point and was not movable in relation to the bony pelvis. An X ray examination had not revealed any bony involvement. The tumour was considered to be probably a sarcoma, not of osteogenic origin. An exploratory operation had been undertaken through a long incision, placed so that the fibres of the *gluteus maximus* could be separated in their whole length. Below the *gluteus maximus* the tumour had been exposed, pushing aside the *gluteus medius* from which it was fairly well defined. Its relation to the underlying bone had been investigated at its upper margin. It was found to separate from the bone fairly easily, but left a rough raw surface behind quite devoid of periosteum. The process of separation had been continued and ultimately the tumour was completely removed. The last portion to be freed was over the sacro-iliac joint, where it was found that a hole was present, leading into the joint and easily admitting one finger. The only technical difficulty in the operation had been in connexion with the gluteal vessels. They bled freely, but were controlled by forceps placed deep in the great sacro-sciatic foramen. They had been allowed to remain in place for thirty-six hours. The histological report was to the effect that the growth was a small round-celled sarcoma.

Dr. Lee said that the further treatment of such a patient was a matter of very great difficulty. Neither radium nor deep X ray therapy was available in Brisbane for hospital patients; practically nothing remained but surgical excision and Coley's fluid. He (Dr. Lee) felt inclined in the near future or at any rate on the first sign of local recurrence to carry out a very much wider excision of the affected area, including the sacro-iliac joint and to begin an extensive trial of Coley's fluid. The fact that this appeared as one of the therapeutic agents in more than half the cases of osteogenic sarcoma recorded by the

American Registry of Bone Sarcoma was surely something more than a coincidence.

Tumour of the Cheek.

Dr. E. S. MEYERS showed a male patient, fifty years of age, who had been suffering from a tumour of the cheek considered to be malignant. A Hotchkiss operation, as described in Bonnie's "Operative Surgery," had been performed and the skin flap had taken well.

Dr. DUBIG was of the opinion from a histological examination that the tumour was of an inflammatory nature.

Thoracoplasty.

Dr. Meyers also reported a case in which he had performed the operation of thoracoplasty. Some four years previously the patient had had an empyema following pneumonia and an operation had been performed in hospital for its relief. The patient on this occasion had been eighteen weeks in hospital and the empyema wound had failed to heal. X ray pictures, taken before and after the operation, were exhibited and it was noted that in the second picture the lung had come up to the chest surface. The technique used was that described by Robinson.

Foreign Body in the Bladder.

Dr. Meyers then showed an X ray picture which had been taken from a girl who said she had "swallowed" a nail file. A nail file ten centimetres (four inches) long could be seen in the radiogram. The bladder had been examined by the cystoscope and the nail file could be definitely seen. With the aid of the cystoscope and an angular pair of forceps the nail file had been brought into the axis of the urethra and then with a helping finger in the vagina the file had been removed *per urethram*.

Splint for Fractures of the Lower Extremity.

Dr. Meyers also demonstrated a splint for use in fractures of the lower extremity. The splint was to have been ready for demonstration at the post-graduate course in August, 1926, but for several reasons progress with the work had been delayed. In August, 1926, Professor Digby had published details of a splint that made use of the same principle as the splint devised by Dr. Meyers. However, in his (Dr. Meyers's) splint the "trombone" principle of extension had been applied to both the femur and the tibia. The splint had been exceedingly well made by Mr. Robertson, of Savage and Company, Melbourne.

Foreign Bodies in the Stomach.

Dr. J. B. McLEAN then exhibited a patient, aged thirty-seven years, who had been admitted to the Brisbane General Hospital on January 13, 1927, complaining of jumbur and iliac pain on the left side. She stated that she had swallowed a fork. An X ray examination of the abdominal contents had revealed not only the offending fork, but also two hairpins, a toothbrush and a rounded foreign body like a piece of tubing. An operation had been performed by Dr. McLean, assisted by Dr. Anderson and from the stomach was removed a fork, a wooden penholder with a metal clip, a toothbrush, a piece of bandage and a hairpin. The second hairpin could be felt in the left side, near the left of the spleen and it had been removed after cutting through the rectus muscle. It was just under the diaphragm. The patient had been very ill for a few days, but was on the road to recovery.

Dr. Anderson then demonstrated the remarkable collection of foreign bodies which had been removed.

Lesion of Bone.

Dr. ALEX. P. MURPHY presented a woman, aged forty-three years, who had complained of pain in the back for eighteen months. Three years previously she had had the left breast removed on account of a tumour, supposed to be a carcinoma, but no pathological examination was made at the time. She had suffered from a condition of *molluscum fibrosum* since she was eleven years of age. An X ray examination of the lumbar region had revealed a condition which was at first thought to be carcinoma, but further examination of the skeleton revealed a cystic

condition involving practically every bone in the body. As a result of investigation of the literature on the subject and comparison with other skiagrams the condition was diagnosed as *osteitis fibrosa cystica*, von Recklinghausen's disease of bone.

The patient had been shown at a clinical meeting eight months previously, when several members had expressed the opinion that the condition was one of secondary carcinomatosis; but the only evidence that could be brought forward in favour of this was the fact that the patient had had a tumour of the breast, no one being able to describe the radiological appearance as in any way characteristic of carcinoma.

The case, Dr. Murphy thought, appeared to be unique, showing the two types of von Recklinghausen's disease occurring simultaneously in the one patient.

Dr. A. E. LEE stated that he still thought, as he had when he saw the patient first, that the diagnosis of fibro-cystic disease was incorrect. Firstly, he said, in relation to the history, *osteitis fibrosa* was a disease of young people, starting usually in adolescence and progressing slowly over many years. The beginning of such a disease at fifty years of age was, Dr. Lee stated, unknown. Yet in this case not only was there no record of bone disease in early life, but there was none till a few months after a malignant breast had been removed. After this in the course of a few months a painful bone disease had appeared, involving most of the bones in the body. Secondly, in regard to the distribution of the lesions, *osteitis fibrosa* involved only a few long bones. Writing two years ago a contributor to *Surgery Gynecology and Obstetrics* had said he knew of no case in which a rib had been involved and practically none involving the vertebrae or skull bones. Yet in this case the ribs were riddled with disease, as were also many of the vertebrae, while the distant long bones of the legs were almost immune. Dr. Lee thought that the X ray findings in this case furnished a beautiful picture of the truth of Sampson Handley's theory of lymphatic permeation in malignant disease. The fact, Dr. Lee concluded, that the patient was apparently not getting worse was not necessarily a bar to the diagnosis of secondary carcinomatosis in bone.

Dr. V. McDOWALL was of the opinion that this was a case of von Recklinghausen's disease of the skin affecting the bones and not a case of carcinomatosis.

Dr. A. V. MEEHAN had also seen the patient at a previous meeting and had decided that it was one of carcinomatosis of the bones, following carcinoma of the breast. The X ray pictures shown at the meeting did not lead him to change his opinion. The X ray appearance of the spine seemed to suggest a secondary carcinomatosis. A point which was a little puzzling, was that the general condition of the patient was still good, but this did not necessarily exclude a diagnosis of carcinoma.

Dr. J. V. DULIG then pointed out the differences between *osteitis fibro-cystica* and myeloma.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

Perkins, Robin Roussel McCreadie, M.B., Ch.M., 1925 (Univ. Sydney), The Manse, Ethel Street, Burwood.

Medical Societies.

THE NEWCASTLE HOSPITAL CLINICAL SOCIETY.

A MEETING OF THE NEWCASTLE HOSPITAL CLINICAL SOCIETY was held at the Newcastle Hospital on January 6, 1927, Dr. W. NICKSON in the chair.

Hysteria.

Dr. J. BOSTOCK showed a patient who was suffering from hysterical retention of urine. He said that the usual

hysterical symptom was one which did not lead the patient into danger, for example an anaesthesia which did not result in burning of the skin, seizures which occurred in conveniently safe situations *et cetera*. Rarely was so eminently disagreeable and dangerous a symptom as retention of urine chosen that the following case was worth reporting.

T.K., aged forty-three years, a stoker, of good physique and average intelligence, a Londoner by birth, had been admitted to Newcastle Hospital on November 6, 1926, with a history that the end of a rubber catheter had broken off in his bladder. This had happened in heavy weather at sea twelve days previously, whilst as had been his custom for some time he had been catheterizing his bladder. Subsequently he had used a spare catheter which he always carried in case of emergencies.

A suprapubic cystotomy had been successfully performed by Dr. S. Gardiner two days later and 7.5 centimetres (three inches) of the head of a catheter were removed. A tube had then been stitched into the bladder and recovery was uneventful except that there was still retention of urine after the wound healed. In view of the fact that no organic cause could be discovered, the patient had been transferred to Dr. Bostock's care as having a functional nervous disorder. A diagnosis of hysteria had been made on finding areas of anaesthesia attributable to no known nerve or cord lesion, limitation of the visual fields and the following history which provided a definite if unusual psychological motive.

In 1917 a ship on which the patient was travelling, had been torpedoed when off Dunkirk and he had lived for three days in an open boat. On being picked up by a French cruiser he had developed pneumonia and had subsequently experienced difficulty with his urine, passing it only once a day.

During September, 1917, off Ushant and in March, 1918, off Plymouth, his ship had again been torpedoed. About this time he noticed that his urine was better in hot weather. In June, 1925, he had had an operation under general anaesthesia for appendicitis at Brisbane. This had been followed by retention of urine and after seven weeks he was discharged, though still requiring catheterization.

In May, 1926, drainage tubes had been placed in his bladder whilst in hospital in New York and he was afterwards able to pass his urine freely for four days, but unfortunately, as the doctor had foretold, he would require a fortnight's rest and as circumstance compelled him to return to his ship immediately, he soon relapsed. Catheterization had been a daily ritual until his arrival in hospital on November 6, 1926.

On interrogation he had expressed a very strong wish to leave the sea. It might be mentioned that in addition to his war experiences he had been shipwrecked in 1924, so he had abundant cause for his profound dislike of the sea. If it was remembered that a bladder trouble which was worse in cold climate, was a convenient way of making him prefer the torpedoeless southern oceans, it was but an extension of the theme to suppose that a catheter life was high impossible on shipboard and would make shore living a necessity. His retention of urine when viewed in this light was a solution to the problem of how to return to the land.

Very naturally before the hysterical basis was discovered the patient had been advised to "try hard" to pass his urine. This gave the counter suggestion that since he must "try," there was a "considerable doubt if he could." He had made valiant efforts, but had no success and his inability had finally been accompanied by great emotional disturbance in which he threatened suicide and he had been removed to the Reception House on December 10, 1926. As his symptoms were urgent and he had expressed a wish to have his bladder dilated, Dr. Bostock had ostentatiously had a table prepared as for a major operation and Dr. S. S. Gardiner had very kindly come and passed his largest bougie under an anaesthetic.

Previously he had been told that he must on no account try to strain as the water would flow naturally and freely after the operation. These suggestions had been repeated during the time of developing anaesthesia and afterwards. The result had been as anticipated and he was discharged

three days later, having no bladder symptoms. A week afterwards he had returned having had an overdose of laudanum in an attempt to cure toothache. He had had retention of urine for a day. This had been treated as a matter of no importance and had not returned. He was now receiving occupational therapy with daily suggestions and persuasions that his troubles were a thing of the past.

He was happy, contented and in excellent physical health. His relapse had been due to his too short stay in hospital; he was discharged at his own request. It had to be remembered that hysteria was primarily due to a defect in the personality, a dysemotionalism for which adequate time must be allowed in treatment on rational lines. The short and spectacular methods, whether suggestive or hypnotic, as exemplified by the progress of this patient were seldom permanent unless analysis and reeducative methods were also adopted. In this case if "land and sea" conflict could be satisfactorily solved, the prognosis should be good.

Dr. Bostock in conclusion acknowledged his indebtedness to Dr. S. S. Gardiner and Dr. T. Hamilton for permission to use case notes and for other information.

Hodgkin's Disease.

DR. C. CLARK read the history of a male patient, aged sixty years, wharf labourer, who had been admitted to the wards of Newcastle Hospital on November 11, 1926. The patient had been quite well until about four months prior to admission. He had suddenly been seized with a severe pain in the left side of the chest which radiated down the inner side of the left arm and forearm. This pain had persisted, though it was intermittent in character. On admission he had complained of pain in both sides of the chest which was worse on exertion and accompanied by breathlessness. Eight weeks prior to examination he had noticed lumps in both groins, that in the left groin being the larger.

One week prior to admission the mass in the left groin had become "purple" in colour and commenced to discharge. On admission the discharge had almost ceased.

An examination made on his admission had revealed the following signs and symptoms: Intermittent pain in chest and dyspepsia on exertion, sallow complexion, a large mass of glands in the left groin covered with red and indurated skin. The inguinal and femoral groups of lymphatic glands on the right side were found to be enlarged, as were also the supraclavicular lymphatic glands and all the lymphatic glands in the triangles of the neck and axilla on both sides. The spleen could not be palpated nor had the area of splenic dullness been enlarged on percussion. The left border of the heart had been found ten centimetres (four inches) from the mid-line.

On November 12, 1926, a gland had been removed from the left axilla for pathological examination.

On November 15, 1926, cellulitis had commenced in the wound at the site of removal of the gland and had rapidly spread along the wall of the thorax and abdomen. The patient's condition had become worse and he died on November 19, 1926.

A blood count made in August had yielded the following information:

Erythrocytes, per cubic millimetre	3,862,000
Hæmoglobin value	60%
Colour index	0.8
Leucocytes, per cubic millimetre	9,375
Large lymphocytes	3.5%
Small lymphocytes	73.5%
Neutrophile cells	21.5%
Eosinophile cells	0.5%

In September the blood count had been as follows:

Erythrocytes, per cubic millimetre	3,260,000
Hæmoglobin value	55%
Colour index	0.9
Leucocytes, per cubic millimetre	8,750
Large lymphocytes	4%
Small lymphocytes	69%
Neutrophile cells	22%
Eosinophile cells	1%

A radiogram of the thorax had revealed a definite increase in the mediastinal shadow in the vicinity of the hila of the lungs. An examination of the blood carried out on November 13, 1926, had resulted as follows:

Erythrocytes, per cubic millimetre	3,240,000
Hæmoglobin value	50%
Colour index	0.8
Leucocytes, per cubic millimetre	23,750
Neutrophile cells	7.6%
Large lymphocytes	5.2%
Small lymphocytes	87%
Large mononuclear cells	0.2%

The temperature had been irregularly elevated throughout the illness.

The Honorary Pathologist had furnished the following report after examining stained sections of the excised glands.

Sections show a peculiar hyaline central stroma with some thin walled blood vessels. The remainder of the gland appears fairly normal. There is nothing to suggest tuberculosis or lymphocythæmia, but a similar appearance occurs in advanced Hodgkin's disease.

It was pointed out during the discussion that the increase in white cells had made its appearance suddenly and was first revealed in the blood examination made on November 18. The patient had refused to allow further blood counts to be made and the relatives had refused to allow a *post mortem* examination.

The consensus of opinion favoured a diagnosis of Hodgkin's disease.

Liver Fluke Infestation.

DR. A. C. ARNOLD exhibited the liver removed at a *post mortem* examination from the body of a patient who had suffered from a liver fluke infestation.

Pathological Specimens.

DR. E. TRENNERY exhibited two pathological specimens: A tuberculous kidney had been removed at operation. Prior to operation a cystoscopic examination had revealed pus discharging from the ureteral orifice, but no changes in the mucosa of the bladder. Repeated examinations had failed to find tubercle bacilli in the urine of the bladder or ureter, nor were any tubercle bacilli found in specimens obtained from the kidney itself. The diagnosis had been confirmed by an examination of sections obtained from the specimen.

A portion of the bowel wall of a patient who died of amœbic dysentery, was exhibited and the character of the ulcers present was described.

THE ALFRED HOSPITAL CLINICAL SOCIETY.

A MEETING OF THE ALFRED HOSPITAL CLINICAL SOCIETY was held on March 29, 1927, at the Alfred Hospital, Melbourne, Dr. J. F. MACKEDDIE in the chair.

Myeloid Leuchæmia.

DR. W. K. DAVENPORT showed a patient who was suffering from myeloid leuchæmia. The patient was a well nourished, somewhat pale woman of about fifty-five years of age. The spleen was enlarged and extended down into the pelvis. There were nodules under the skin of the thigh, thorax and in the upper quadrant of the breast. The nodules were firm, rounded and discoloured by a purple tinge, rather like a bruise. The past and family history were devoid of ætiological significance. The white blood cells numbered 264,000 per cubic millimetre, 55% of them were myelocytes and 36% neutrophile cells. The liver was enlarged.

DR. A. V. M. ANDERSON, in discussing this case, advised the excision and examination of a nodule. X ray and arsenical treatment had often a striking result for a time. In one patient of his the white cell count had been reduced from 365,000 per cubic millimetre to 5,000 by this means, but relapse and death had subsequently occurred.

DR. D. M. SILBERBERG spoke of similar patients whom he had treated; all of them had had complete achlorhydria. He had seen benzol do good in this condition, but it was necessary to watch the blood cell count closely while this treatment was being used.

Pulmonary Tuberculosis.

DR. B. R. HALLOWS showed a patient suffering from pulmonary tuberculosis who had made extraordinary improvement whilst being treated with intravenous injections of "Acriflavine." The patient was a woman of twenty-two years of age with a two years' history of typical severe symptoms of pulmonary tuberculosis. The sputum had contained many tubercle bacilli. X ray examination had revealed severe infection of both lungs and in the right lung evidence of cavitation had been present. The temperature had been high and swinging.

The patient had been put on hygienic treatment, heliotherapy and creosote drops by the mouth. A 2% solution of "Acriflavine" had been given intravenously, commencing with a very small dose and increasing every three days until five cubic centimetres were injected at a time. After treatment for six months all the symptoms had greatly improved, the weight increased, the temperature dropped and after the second X ray examination a report had been received to the effect that fairly severe infection was still present, but that no signs of cavitation could be found.

Dr. Hallows said that the object of showing the patient was to demonstrate the value of "Acriflavine" as an adjunct to the routine treatment of phthisical tuberculosis, especially in cases of massive infection.

DR. W. SUMMONS in discussing the case congratulated Dr. Hallows on his result and said that he had tried "Acriflavine" but had not had the same success with it. He would be glad to hear of further patients so treated.

DR. J. F. MACKEDDIE spoke of Moellgaard's recent therapeutic measures with the cold compound, "Sanocrysin." He said that it was essential to be sceptical when any treatment for tuberculosis was lauded, but Dr. Hallows's case was most convincing and he would be glad to hear of any future results.

Adenoma of the Thyroid.

DR. W. SUMMONS showed a patient who was suffering from adenoma of the thyroid. The patient was a woman of fifty-eight years of age who twelve years previously was operated on for goitre, the right lobe then being removed.

During the last two or three years a hard mass had been noticed in the mid-line and the left lobe had been swelling. She complained of pain in the neck and some difficulty in breathing, especially at night. On examination there was a hard adenomatous enlargement of the thyroid isthmus and a nodular, but softer swelling of the left lobe. The hard central mass was firmly fixed to the trachea. There was a degree of hypothyroidism, no tremor, no tachycardia. She had a systolic blood pressure of seventy millimetres of mercury. No reaction had occurred to the Wassermann test. Dr. Summons regarded the condition as an adenoma of the thyroid and he asked the opinion of those present regarding treatment. Was the patient suitable for surgical measures in view of the hypothyroidism, the damaged myocardium and arteriosclerosis? The question of malignancy had to be considered, but was regarded as unlikely in view of the length of history.

MR. J. L. DIGGLE recommended operation in view of the possibility of the adenoma increasing in size. Moreover, great care would have to be exercised in the amount of gland removed because of the mental apathy already existing. At the time of operation the nature of the gland enlargement should be investigated.

MR. A. J. TRINCA agreed with Mr. Diggle's opinion on this case.

Hour Glass Contraction of the Stomach.

DR. J. R. BELL showed a patient who was suffering from hour glass contraction of the stomach. The patient had been before the Society a year previously and had then done well on medical treatment only. For ten months

the patient had been free of symptoms, but they had returned and were causing considerable trouble. An X ray examination revealed that there was still a small perforated ulcer on the lesser curvature and a definite hour glass contracture. Dr. Bell had all along been of the opinion that the patient should have been treated by surgical means, but as she had done so well on medical treatment she wished to persevere with it.

MR. JOHN KENNEDY in discussing the case strongly recommended operation, but suggested local anaesthesia.

MR. A. J. TRINCA suggested that the operation chosen would be of necessity have to be determined during the laparotomy. In all probability an exclusion operation, joining the jejunum to the proximal pouch, would be needed.

MR. E. T. CATO and MR. J. L. DIGGLE also discussed the case; they recommended partial gastrectomy. The result in similar cases had been satisfactory.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING OF THE SENATE OF THE UNIVERSITY OF SYDNEY was held on April 4, 1927.

The following degrees were conferred *in absentia*:

Bachelor of Medicine (M.B.): Francis John McEnroe and John Allen Thoms.

Bachelor of Medicine (M.B.) and Master of Surgery (Ch.M.): George Lewin Burton.

The following resolution was adopted in connexion with the demise of Professor A. Anstruther Lawson, Professor of Botany:

1. That the Senate desires to record its heartfelt regret at the death of Professor Abercrombie Anstruther Lawson, D.Sc., F.R.S.E., and its deep sense of the loss thus sustained. Professor Lawson came among us with a high reputation which he has fully justified and notably enhanced. He was the first occupant of his chair in this University and had to build up the School of Botany almost from its foundation. He not only did so with such success that in fourteen years it has become one of the most flourishing and active of our scientific departments, but pursued in regard to the plant life of Australia original researches which, besides greatly increasing the knowledge of our native flora, have contributed to the advance of botanical science throughout the world. Much as he has already done the work in which he was engaged at the time of his death was even more important, and would have brought fresh honour to the University and himself and thrown further light on the processes of Nature in the vegetable world. The premature close of his distinguished career, when he was proceeding from strength to strength and was looking forward to new labours and achievements, adds to the sorrow felt by his many friends and admirers for his death.

2. That this resolution be transmitted with the sympathy of the Senate to Professor Lawson's brothers, Mr. J. Kerr Lawson and Professor Andrew Lawson.

The following resolution was adopted in connexion with the demise of Dr. J. M. Petrie, Bosch Cancer Research Fellow:

The Senate desires to place on record its sense of the loss sustained by the death of James Matthew Petrie, D.Sc., Bosch Cancer Research Fellow. Dr. Petrie, who was the second graduate to obtain the Doctorate in Science in the University of Sydney, devoted practically his whole life to biochemical research, in which he achieved a very high reputation. He had long experience in practical work in the laboratories of the Department of Physiology where as Linnean Macleay Fellow and later as Bosch Cancer Research Fellow he carried out important researches. By his devotion to medical science and by his never-

failing courtesy he endeared himself to his colleagues and his passing is a distinct loss to the community in general and to medical science in particular.

That a copy of this resolution be forwarded to his widow with an expression of deep regret at the loss of her husband.

The Honourable Philip Street, Chief Justice of New South Wales, was reelected to the position of Deputy Chancellor for the year 1927-28.

It was resolved to make application to the Colonial Office, London, for recognition of the courses in Anthropology delivered at Sydney University.

Professor R. D. Watt was appointed to represent the Sydney University at the celebration of the Centenary of University College, London, in June next.

It was resolved to express sympathy with the relatives of Mr. Bernard Deacon, who was recently appointed to the Lectureship in Anthropology, and who died at Malekula on March 12 last, when engaged in research work.

The following appointments were approved:

Dr. J. M. Byrne, B.Sc., as Medical Biologist to the Cancer Research Committee.

Dr. C. C. Coghlan and Dr. M. R. Flynn as Honorary Demonstrators in Operative Surgery and Surgical Anatomy in the Department of Surgery.

Dr. T. Schenk and Dr. L. J. Shortland as part-time Demonstrators in Anatomy.

Dr. J. C. Storey and Dr. R. L. Raymond as Honorary Demonstrators in Anatomy.

Science Research Scholarships to the value of £200 each and covering a period of one year were awarded to the following:

Mr. I. V. Newman (Botany).

Miss Daphne L. Goulston (Physiology).

Mr. K. H. Lauder, B.Sc. (Chemistry).

Mr. H. W. Hogbin, B.A. (Anthropology).

Miss Eileen L. Durrell, B.Sc. (Physiology).

It was resolved to recommend to the Commissioners of the 1851 Exhibition that Messrs. J. D. McGee and K. H. Lauder be awarded Science Research Scholarships.

Public Health.

QUEENSLAND.

THE Commissioner of Public Health of Queensland, Dr. John I. Moore, has issued his report for the year ending June 30, 1926. The report deals with the work carried out in the Department and in addition contains "comments regarding public health administration for the State of Queensland." As Dr. Moore is responsible for the administration of the acts dealing with public health it is to be expected that he will be a severe critic of his own work. It is a case of Jekyll examined by Hyde.

Statistical.

As usual the report opens with statistics regarding the crude birth rate and the death rate. In these two matters Queensland has for years past occupied a relatively satisfactory position. The birth rate has decreased slightly since last year, but at the same time it occupies the third place among the Australian States. Tasmania heads the list with 24.24 per thousand of population, New South Wales comes second with 24.01% and Queensland third with 23.82%. During the previous twelve months for which figures are available, the numbers were 25.07%, 25.11% and 23.88%. In his report last year the Commissioner pointed out that in 1915 the birth rate was 29.25%. He does not discuss the reason for this falling off. At the same time he gives figures for several other countries within the Empire. It will be seen from these that a decrease has occurred in all the Australian States, in England and Wales, in Scotland, in Canada and in South Africa. New Zealand and the Irish Free States alone show an increase. The birth rate in the former has increased from 20.71% to 21.17% and in the latter from 19.4% to 20.1%.

The death rate has fallen from 8.88% to 8.86%. This figure is lower than that of any of the other Australian States. Victoria heads the list with 9.47% and Tasmania comes second with 9.35%. The death rate of New Zealand alone is lower than that of Queensland, the figure being 8.29%. A fall in the death rate has occurred during the twelve months in each of the Australian States. In New Zealand it has risen from 7.96% to 8.29%. In Canada the death rate has fallen, but in England and Wales, Scotland and the Irish Free States it has risen. In Scotland the rise has been greatest, from 12.9% to 14.4%.

The figures for the infantile mortality are interesting. New Zealand has the lowest rate, 40.0%, and Queensland comes second with 45.4%. This last figure has fallen during the year from 51.3%. The figures for the other Australian States have fallen with the exception of Western Australia and Tasmania. Those for the former have risen from 49.9% to 56.81% and for the latter from 55.80% to 55.19%. The figures for England and Wales, Scotland and the Irish Free States have also increased, the largest rise having occurred in Scotland from 79.0% to 98.0% (the last named figures are for 1923 and 1924). The estimated population of Queensland for the year 1925 was 861,185 persons as opposed to 834,894 for 1924. The Commissioner concludes that Queensland "climatic conditions and environment tend towards making a virile and healthy race."

Communicable Diseases.

Communicable diseases are considered under a separate heading apart from venereal disease. The number of communicable diseases notified during the period under review was 2,603 as compared with 2,283 for the previous year.

Diphtheria.

The number of diphtheria cases has increased from 963 for 1924 to 1,508 for 1925 to 1,926. The Commissioner as Mr. Jekyll tells the Commissioner as Mr. Hyde that his Department is not altogether responsible for this increase. The increase "is greatly to be regretted, especially in view of the control of this disease having been taken over by the Greater Brisbane authorities." Examination of the figures, however, shows that quite a large proportion of the increase has occurred outside the Brisbane metropolitan area. Within the Brisbane metropolitan area the number of cases of diphtheria notified rose from 451 to 799 and in outside areas from 512 to 709. Most people will agree with the Commissioner's plea for the adoption of the Schick test and for the use of toxin-antitoxin immunization. He is not aware of any local authority in Queensland having adopted the Schick test for the purpose of finding out what children are susceptible to diphtheria. As has so often been emphasized in this journal, it is time that some legislative measures were introduced which would enable the head of a health department to enforce obvious measures for the prevention of communicable diseases. The Commissioner is inclined also to blame the Greater Brisbane authorities for the accumulation of offensive waste matter which he holds is reducing the resisting power of the community and rendering it an easy prey to the diphtheria bacillus. He points out that in 1922 when the cities of Brisbane and South Brisbane were thoroughly cleansed in an attempt to cope with the outbreak of plague, the incidence of diphtheria dropped to under 200 cases for the following twelve months. This may be so, but it would be interesting to discover whether the present rise is not due to the periodical rise in the curve of infectious diseases which occurs in any community. The Commissioner intends to direct the attention of extrametropolitan local authorities to the increase in the number of diphtheria infections and to request them to take action at least by swabbing the throats and postnasal spaces of the children attending school and by paying strict attention to the regulations provided. He hopes to report a lowering in the incidence of diphtheria at the end of the next twelve months.

Enteric Fever.

The number of infections due to the *Bacillus typhosus* has decreased from 314 to 214 cases. This fall is credited

to the enforcement of the provisions of the Department's regulation governing the control of sanitary conveniences. According to these regulations all closets in non-sewered areas are required to be flyproof.

Plague.

No case of plague was reported in Queensland in man or rodents during the period under review. It is satisfactory to note that the efforts of the Department in waging war on rats have not been relaxed. From the report of the Laboratory of Microbiology and Pathology it is seen that 48,327 rats and 3,952 mice were examined in Brisbane during the year in addition to numerous smears from country centres.

Pulmonary Tuberculosis.

The cases of pulmonary tuberculosis notified during the year numbered 342 as against 348 for the previous year. The metropolitan area accounted for 186 infections and outside areas for 156. The number of applicants for institutional treatment was 98. Out patients numbered 163 and two patients were visited and attended in their homes. Unfortunately no detail as to treatment other than distribution to sanatoria and hospitals is given.

Venereal Diseases.

A reduction occurred in the number of notifications of venereal disease, the number being 1,401 as opposed to 1,503 for the preceding twelve months. The total number notified was 1,550, but 149 of these notifications had been previously made. A reduction occurred in the number of male persons affected, but among the females there was an increase. The principal infections included 1,110 cases of gonorrhœa among males and 161 among females, 70 males and 8 females were affected by primary syphilis and 18 males and 5 females by secondary syphilis. An effort was made to trace the source of infection. In 637 instances the source was unknown or unascertainable, amateur prostitutes were responsible for 339 infections, unknown prostitutes for 297, prostitutes from houses for 97, wives for 15, husbands for 12 and black gins for 4.

During the year 570 new patients presented themselves at the clinic for males in Brisbane. The number for the previous twelve months was 574. It was found that approximately 50% were suffering from venereal disease. At the end of the year under review there were 391 patients on the clinic records as against 466 at the end of the previous year. During the year 366 persons defaulted in treatment at the clinic for males. Communications were sent to 313 of the number and 148 returned to the clinic. The police were asked to trace the remaining 188. This number included 23 whose names had been forwarded direct owing to the fact that they had been previously warned. The number of inquiries standing over from the previous year was 37. The 225 persons to be accounted for were sought with the following results: 133 were warned (no trace could be found of 77, eleven had left Queensland, one was in gaol, one was in a mental hospital and two replies were outstanding. Six prosecutions were launched during the year, five for failure to comply with an official order and for failure on the part of the patient whilst suffering from venereal disease to report within a prescribed time to a medical officer; one case was pending at the end of the year. Two of the five prosecutions were withdrawn on the men reporting for treatment.

During the year under review a change was made in the clinic for females and from February 1, 1926, patients were treated at the surgeries of private medical practitioners by arrangement with the Department. From that date until June 30, 1926, 60 women were sent to four doctors. From July 1, 1925, to January 31, 1926, 35 new patients were seen at the clinic and 477 consultations were held. From these figures it would appear that the new régime will produce more satisfactory results. It should be much easier to enforce the provisions of a venereal diseases act, if the female patients are not compelled to attend a clinic which is known to exist for the treatment of venereal disease only. It is interesting to note that only seven certificates of cure or apparent freedom from disease were issued to female patients at the clinic. No details are given in regard to the standard of cure.

During the year 852 examinations of prostitutes were conducted and as a result 47 prostitutes were detained in the Venereal Disease Isolation Hospital, South Brisbane. Women were also treated at various centres throughout the State.

It is to be noted that in addition to the 336 defaulters previously mentioned in connexion with the clinic for males at Brisbane, there were 13 defaulters from the female clinic and 127 other defaulters. When these persons were communicated with forty-two of them forwarded certificates of cure. During the year action was taken in nineteen instances to prohibit the handling of foodstuffs by sufferers from venereal disease.

Sanitation.

Under the heading of sanitation the Commissioner refers to work which has been done by Inspector E. W. Buhôt in regard to the suppression of mosquito life. Inspector Buhôt found that the indigenous small fish such as the blue eye, green perchlet and crimson spotted sun fish are equal in their larvivorous habits and have the advantage over the well known Barbadoes "millions" of being able to withstand Queensland climatic conditions. In addition a new species of *Nitella* has been tested and has been found to prove an efficient deterrent to the breeding of mosquitoes.

Food Inspection.

Under the heading of food inspection reference is made to control of the milk supply. The Commissioner points out that an improvement in the handling of milk is taking place. Advice of an educational nature has been circulated among milk vendors and the cooperation of the Department of Agriculture and Stock has been obtained in advising dairymen as to what action is necessary to reduce the high bacterial count revealed on previous trial tests. The responses of farmers and dairymen to this propaganda have been satisfactory. Samples of milk numbering 1,078 were submitted for analysis during twelve months. Of these samples 1,027 were "legal samples" (a curious phrase) and 51 were unofficial. Of the "legal samples" 792 passed the standard, 28 were genuine, but below the standard, 63 were deficient in fat, 71 were adulterated with water, the average percentage of added water being eight and 73 samples were unsuitable for analysis. Samples of milk numbering 369 were submitted to bacteriological examination. Of these 336 were examined for the counting of bacteria and 33 for the presence of tubercle bacilli. Following upon an initial survey during the year 1924 to 1925 a bacterial standard of not more than one million microorganisms to the cubic centimetre was established. In accordance with this determination the above-mentioned examinations were made. The count in one-third of the samples was below 500,000 and in 41.8% below 1,000,000. In some instances extraordinarily low counts were registered, 37 samples yielded counts below 50,000 and in some instances the number was below 10,000. In view of these findings emphasis is laid on the fact that suppliers can forward milk which is for all practical purposes bacterially pure. The Department of Agriculture and Stock is cooperating with the Commissioner of Health in this matter and has inspected a total of 63 dairies.

TASMANIA.

THE annual report of the Department of Public Health of Tasmania for the year ended December 31, 1925, has been issued. Tasmania is unfortunate in that during this period it has had no director of public health. During the year legislation was passed granting power to the Secretary of the Department to exercise all or any of the powers and to perform all the duties of the Director of Public Health while that office was vacant. Mr. E. J. Tudor has thus been called upon *notens volens* to carry out duties which must have been trying for him and for which he has had no professional training. Doubtless he has had the advice of extra-departmental medical practitioners when such has been necessary and in these circumstances he is to be congratulated upon the report presented.

Health Commission.

The report opens with reference to the recent Royal Commission on Health and to the various matters which were considered by the Commissioners according to their terms of reference. The opinion is expressed that if the recommendations outlined in the report of the Commissioners were adopted, they would have a very important bearing upon the future policy of health administration in this State. Mr. Tudor makes no further comment than this. Perhaps he is wise in so refraining, although as a result of his long association with the Department he must be thoroughly conversant with its needs both from a domestic and from an interstate point of view. In the opening part of his report he states that for reasons of economy the report has been confined chiefly to statistical information and that comment and explanation have been eliminated as far as possible.

Notifiable Infectious Diseases.

Diphtheria.

The number of persons notified as suffering from diphtheria during the year was 473. For 1924 the number was 597, for 1923 it was 870, for 1922 1,618 and for 1921 2,055. During the twelve months under review no less than thirteen municipalities were free from infection by the Klebs-Löffler bacillus. The deaths numbered thirteen or 6.09 per thousand of population. The case mortality was 2.74%. We have repeatedly pointed out that figures such as these do not always reveal the true position of affairs. It would be much more satisfactory if the number of infections of diphtheria and the other infectious diseases were plotted in the form of a graph for a period of fifteen or twenty years. It would then be possible to determine the position occupied by any increase or decrease in the general rise and fall which is characteristic of all infectious diseases.

Scarlet Fever.

In regard to scarlet fever a falling off in the number of infections is to be noted. The number of notifications during the year was 288. For the four previous years, 1924 to 1921, the numbers were respectively 376, 604, 981 and 598.

Enteric Fever.

An appreciable decrease has taken place in the incidence of enteric fever. During 1925 the notifications numbered 50. During 1924 78, during 1923 91 and during 1922 139. During the period under review thirty-five municipal districts were able to present a clean sheet as far as enteric fever was concerned. This is satisfactory and it would be interesting to know what special steps, if any, are taken in regard to the prevention of this disease.

Tuberculosis.

Tuberculosis of the throat and lungs is notifiable under the Act. The notifications numbered 183 and of these 64 came from Hobart and 33 from Launceston. The opinion is expressed that it is useless to undertake any organized effort for the prevention and control of this disease until the social and economic problems involved are overcome.

Puerperal Fever.

From only nine municipal districts among forty-nine were notifications of puerperal fever received. The total for the year was 16 and of these six came from the Hobart district. In continuation of the policy adopted by the Department in the past the midwife in attendance on the patients was suspended from further practice for a period of twenty-eight days "with a view to preventing the spread of infection." The question might well be asked: "What of the medical practitioners?"

Venereal Disease.

The total number of notifications of venereal disease received during the year was 460. The patients comprised 328 males and 132 females. These figures do not point to any diminution in the incidence of disease of this character. Two hundred and six notifications or 45% of the total were

received from public hospitals where facilities are provided for the free maintenance and treatment of patients. This arrangement is made possible by an agreement between the Commonwealth and State Governments whereby the former grants a subsidy to the latter. The cases of gonorrhoea notified numbered 400; 231 of these were of metropolitan and 169 of extra-metropolitan origin. One hundred and seventy of the patients were treated at hospital clinics and 230 by private doctors. It is interesting to note that while forty patients were notified as suffering from primary syphilis, no notification of secondary syphilis was received. Evidently Tasmanians have been educated to seek treatment at an early stage. Thirty-four of these forty patients were treated at hospital clinics and six by private practitioners. Mr. Tudor points out that additional facilities are urgently required at the Hobart Public Hospital for the treatment of outdoor patients suffering from venereal disease. The Commonwealth Government was asked to increase the subsidy so that this might be done, but a decision on the matter was deferred pending the report of the Royal Commission on Health.

The Hospitals Act.

At the close of the year there were ninety-two licensed private hospitals in the State. Of this number fourteen were medical, surgical and lying-in hospitals, three were medical and surgical only and seventy-five were lying-in hospitals. All private hospitals have been inspected at regular intervals. Legal proceedings were successfully instituted against one individual for conducting unlicensed premises in spite of a warning previously given by the Department.

Child Welfare and Infantile Mortality.

The work conducted in regard to child welfare and infantile mortality is regarded as satisfactory. It is stated that the attendances at the clinics are still increasing as well as the visits made by the nurses to mothers and babies in their homes. No information is given as to the number or situation of the clinics or of the numbers of mothers who avail themselves of this opportunity. Courses of instruction in mothercraft and infant hygiene are given to classes of girls from the state schools. The nurses report that the children receive this instruction with intelligent interest. No mention is made of the ages of the children concerned or of the extent and duration of the instruction which they received.

The number of deaths of infants under one year of age in 1925 was 287 as against 296 in the preceding year. The mortality rate, however, was the same, namely 55 per thousand births.

Foods and Drugs Acts.

Under the provisions of the *Foods and Drugs Acts* particular attention has been directed to the milk supply. Frequent visitations are paid and advice is given to dairymen who are regarded as becoming more ready to see the advantages of cleanliness in milk production. No further information is given in this regard. Apparently there is no bacteriological standard. Tasmania would do well to follow the excellent example set by the Queensland Department of Health in the handling of its milk supply.

Special Correspondence.

LONDON LETTER.

BY OUR SPECIAL CORRESPONDENT.

Courses for the M.R.C.P. Examinations.

It will be of interest to readers to learn that two London hospitals have now organized courses suitable for the M.R.C.P. examinations. The Middlesex Hospital Medical School provides two weeks' practical course in chemical pathology and clinical medicine. The course will include

lecture-demonstrations and, in addition, candidates will have ample opportunity for practical work in the laboratories of the Biochemistry Department. The fee is fixed at seven guineas. The same hospital also holds a four weeks' course occupying the whole day from 10 a.m. to 4 p.m. and will include the examination of and *viva voce* examinations upon selected cases in the various medical departments, tutorial classes and pathological demonstrations.

The other hospital is the Royal Northern. The course arranged at this hospital will cover a period of two weeks and will consist of twelve lectures or demonstrations on medical subjects, two lectures on medical anatomy and two lecture-demonstrations on pathological specimens and laboratory methods of importance in modern clinical medicine. The fee has been fixed at five guineas.

These courses will be held at suitable periods prior to the dates arranged for the actual examinations.

The regulations governing the Membership of the Royal College of Physicians are briefly as follows:

Every candidate must have attained the age of twenty-three years.

Any candidate who has obtained a degree of Doctor or Bachelor of Medicine of the Universities of Sydney, Melbourne, Adelaide and New Zealand, shall, if the Censors' Board think fit, be admitted to the pass examination.

The examination is directed partly to pathology and partly to the practice of medicine and the subjects are both written and oral. Candidates under forty are examined in Latin and either Greek, French or German; they must not practise in partnership, dispense medicine or engage in trade.

The examinations are held in the months of January, April, July and October.

The fee to be paid for admission as a Member of the College is forty guineas and the fee for the examination is eight guineas.

Fellowship of the Royal College of Surgeons of England.

The registrable surgical degrees of the following Universities, Sydney, Melbourne, Adelaide and New Zealand, are the requisite qualifications for Australian doctors wishing to become Fellows of the Royal College of Surgeons, England. The Diploma of Fellow is not conferred on successful candidates until they are twenty-five years of age, and until they have been engaged in the study (or study and practice) of the profession for not less than four years subsequent to the date of obtaining the recognized qualifications, one year of which shall have been spent in attendance upon surgical practice of a recognized hospital. The diploma is granted to successful women candidates as well as to men.

The examination for the Fellowship is held twice a year and is divided into two parts. The first examination is partly written and partly *viva voce* and the subjects are anatomy and physiology. The second examination is partly written, partly *viva voce* and includes examination of patients and performance of operations on the dead body; the subjects are surgery, including surgical anatomy and pathology.

The first examination is held in June and in December and the second examination in May and in November.

The fees are as follows: For first examination eight guineas (reexamination five guineas) and for second examination twelve guineas (reexamination twelve guineas). The fee for admission to the College is thirty guineas.

The following hospitals in London hold courses of instruction in connexion with the above examinations:

Saint Bartholomew's Hospital.

For the first examination: Two courses annually, March to June and July to December, fee fourteen guineas.

For the second examination: Two courses annually, starting in September and in February, fee twenty-five guineas and ten guineas extra if operative surgery required.

Guy's Hospital.

For the first examination: Two courses annually: fee eleven pound four shillings for anatomy course and eleven pound four shillings for physiology course.

For the second examination: Two courses annually of three months' duration: fee (including operative surgery) twenty guineas.

Saint Mary's Hospital.

For the first examination: Two courses annually, January to June and September to December: fee sixteen guineas.

Middlesex Hospital.

For the first examination: Two courses annually, beginning in February and in July: fee sixteen guineas.

London Hospital.

For the first examination: Two courses annually, February to June and September to December: fee fifteen guineas.

For the second examination: Two courses annually, March to May and September to November: fee twenty guineas and five guineas extra if operative surgery is required.

Membership of the Royal College of Physicians, Edinburgh.

Candidates must be twenty-four years of age and possess a registrable qualification (as for the Fellowship). The subjects of examination are medicine, therapeutics and in any branch of the departments of medicine specially professed, such as general pathology, psychology, jurisprudence, obstetrics. The fee for Membership is thirty-five guineas and examinations are held in the months of January, April, July and October.

Royal College of Surgeons, Edinburgh.

Candidates must be twenty-five years of age and possess a registrable qualification of the following Universities: Sydney, Melbourne, Adelaide and New Zealand. Those candidates who are not personally acquainted with two Fellows, one of whom is resident in Edinburgh, may make application through the Secretary to the President's Council for permission to appear for examination, giving full particulars, testimonials and references as to their status and qualifications. The subjects of examination are principles and practice of surgery, including surgical anatomy, clinical surgery, one optional subject, such as surgical pathology and operative surgery, ophthalmology, laryngology, rhinology and otology, gynaecology, obstetric surgery, anatomy, dental surgery and pathology. Candidates may be required to perform operations on the dead body. The examination on the optional subjects are clinical or practical as well as written and oral.

Candidates are liable for the sum of forty-five pounds to be paid into the College funds.

Candidates are advised to prepare in Edinburgh for these examinations.

Correspondence.

RADIOTHERAPY.

SIR: Dr. Molesworth's letter, March 2, 1927, shows clearly the unsatisfactory position of the treatment of malignant disease to-day.

On the one hand the exponents of radiotherapy seeing surgical failures, lament the unwillingness of surgeons to avail themselves of radiotherapy in the treatment of their cases. On the other hand surgeons who see cases which have not responded to treatment by radiotherapy, are not so optimistic as to its value. Surgeons regret that early cases of malignant disease are not referred to them in the first instance rather than at a later period when the extensive operations undertaken of necessity deter other patients from submitting to operation.

It is to be hoped that the Cancer Research Committee will be able to make a definite statement on the value of various forms of treatment in a few years.

In the meantime it would be helpful if Dr. Molesworth could give detailed results of, say, fifty or one hundred consecutive cases of proved malignant disease treated by him with radiotherapy.

Yours, etc.,

ARCHIE ASPINALL.

175, Macquarie Street, Sydney.
Undated.

THE RED BACKED SPIDER.

SIR: The "jockey spider" has again appeared on the horizon. Dr. Vance and I both wrote him up fully some seven years ago. I ended my article then with the remark that I would expect a delicate child to die from the bite of one of these insects. The recorded death of a child today makes the third fatality I know of. I have treated about thirty of these cases. All of them have been extremely ill, three of them dangerously ill and one, a youth of eighteen years, for two hours appeared hopelessly bad and would certainly have died had he not been vigorously treated in hospital.

I have treated about the same number of snake bites and have never once had a patient that gave me a moment's anxiety. This no doubt is due mainly to the effective local treatment that nearly all bushmen know and carry out. This, however, will not wholly explain it and I have seen a few cases bitten by the tiger snake in whom no treatment had been adopted prior to their arrival at the surgery and who showed very little ill effect. If any of my enemies gave me the choice of having to be bitten by a snake (any old snake) or a Riverina jockey spider, I would unhesitatingly choose the snake and I am not too tired of life yet.

Yours, etc.,

H. V. LETHBRIDGE.

Undated.

THE STANDARDIZATION OF OBSTETRICAL TREATMENT.

SIR: Dr. J. B. Dawson's interesting comparison of the practice of fifty-four years ago with that of today must be illuminating to your readers. I would draw attention particularly to the rare occasions calling for skilled interference in labour, indicating that the rôle of the obstetrician should be in so many instances that of an onlooker.

It would appear, then, that the duty of the teacher is to tell the medical attendant to stand off. In fact, it seems to be more important to insist upon this attitude than to teach him to be a skilled obstetrician. That is to say, there will be less sepsis among mothers as a result of standing by than would result from interference.

From this conclusion we may gather that the medical attendant is the commonest source of infection in parous women.

This opinion has been expressed by myself, by Dr. Morris and by Dr. Geddes at later dates.

I will pass over the reasons for a "stationary mortality" given by Dr. Dawson excepting that which he describes as the "lure of 'Lysol'." Dr. Dawson assumes too much when he says that with this reagent "his personal and instrumental preparation may be aseptic. . . ."

The actual bactericidal effect of the numerous brands of saponified cresols on the market—cresylic acid is often absent from them—is unknown to the users. More than that, the strength of the solutions used would not hurt a fly, except that they run a risk of asphyxiation by drowning in the bowl. Then there are the gloves. We all know what a convenience they are to take off and put on. They are generally off when they should be on!

I am sorry that Dr. Dawson is an autoinfectionist. He refers to "the germ-laden vagina." So it is, of course, but not with anything more than saprophytes and "oldest inhabitants," as a rule.

The mouth and the rectum are germ-laden and the germs are in many cases pathogenes. The oral and rectal

surgeons never hide their failures under the cloak of autoinfection. Why should the obstetrician do so?

Eno is autoinfectionally inclined, especially in regard to the gonococcus, yet his figures both in "in-practice" and "out-practice" show that there is a much greater incidence of morbidity among *primiparae* than among *multi-parae*. Yet this pet refuge would have greater justification if the figures were reversed.

The "previous case," whatever form of infection rests there, is the source of the trouble. It only remains for us to realize that we cannot "cure" infection in our hands with "lurid 'Lysol'," but we must at all times keep them unsoiled. This is the dictum of Theodor Kocher and well worth keeping in mind.

Yours, etc.,

A. C. F. HALFORD.

Brisbane,
April 4, 1927.

SIR: Dr. Dawson's interesting letter in your journal of April 9, 1927, is a valuable demonstration of the stationary character of obstetric treatment and results for more than half a century. A reference to earlier textbooks will show practically no progress in more than one hundred years.

Dr. Dawson incriminates the doctor's haste and carelessness and the mother's impatience of suffering; haste and impatience are not peculiar to our age and may be taken as constant at both ends of the century! Carelessness has certainly decreased owing to the universal teaching of Listerism. It is in hospitals that Listerism won its greatest triumphs; its failure in general practice (as tested by the death rate) shows that sepsis was never the terrible danger in private practice that it was in hospitals and that other causes of death exist than "puerperal fever." It is because most of our teachers are hospital trained and hospital experienced that it is so difficult to convince them that the old time "puerperal fever" is never seen nowadays in the careful practitioner's practice, but that his troubles arise from prior ill health of his patient. Teachers expect too much from surgical cleanliness. After all cleanliness can only prevent accidental infection; it exerts no curative effect on that already in the system! It is common knowledge among the rank and file of the profession that pyelitis is the most common cause of febrile illness during both pregnancy and puerperium and that renal or toxic conditions of one kind or another cause far more worry than a non-existent "puerperal fever." New causes of illness and death during motherhood have been added to the old and need study. The maternal death rate is not a problem of puerperal sepsis. It is a problem of morbid childbearing as a whole, including pregnancy, labour, puerperium and infant; that present day childbearing is pathologic is plainly shown by the prevalence of tedious, painful, complicated labour and weakly and dead babies. Birth is much more dangerous to infants than to mothers; many a doctor never loses a mother, there is never a doctor who has no still-birth. A satisfactory explanation of maternal deaths must also explain fetal and early infantile deaths.

Doctors should recognize that maternal morbidities, like other clinical conditions, vary in causation from period to period, from place to place and under different conditions of practice. Our first need is an acceptable differential diagnosis of autogenous from accidental infection. A good involution, a healthy lochia, an absence of uterine or pelvic tenderness and a prior ailing pregnancy are practically proof positive that an infection is not of uterine origin.

Obstetrics cannot but remain unprogressive both in theory and practice while it is built on such a "definition" of the normal as that accepted for more than one hundred years. The obstetric slogan should be: "An efficient labour in a healthy woman under clean conditions in every case." When obstetrics becomes a truly preventive science, instead of merely a palliative one and recognizes more dangers than puerperal sepsis, eclampsia and contracted pelvis, neither mothers nor babies will die from child-birth.

The teacher does not answer such radical questions as: "What is normal labour?" "What is the cause of pain in labour?" "What factors govern uterine efficiency?"

"What relation is there between the health of the mother and the health of the infant?" "What are the causes of the extraordinary prevalence of pyelitis during child-bearing?" He teaches the treatment of complications, but not the prevention of those complications. We can promise a safe labour to the mother receiving antenatal care; but neither he nor we can promise a spontaneous delivery, an uneventful recovery and a vigorous baby. And until we can promise all these we are not capable obstetricians.

The general practitioner also is blameworthy, not because he is hasty, dirty or careless (he is none of these things), but because he accepts, though with a grumble, the consultants' teaching (probably true enough in hospital) instead of learning from his own experience. Let him not forget that it fell to a general practitioner to revolutionize the theory and practice of cardiology and that it may yet fall to a general practitioner to revolutionize the theory and practice of obstetrics.

When mutual recriminations cease and the teaching consultant realizes that the general practitioner has some knowledge of his job, then may neglected stores of information be drawn upon and new inferences drawn therefrom. Working together, respecting study carried on under all the varying circumstances of practice of all kinds, new developments may follow and remove the reproach of being stationary, unprogressive and unsuccessful from that branch of medicine which is of the most importance to human welfare.

Yours, etc.,

MARY C. DE GARIS.

Geelong, Victoria.

April 14, 1927.

TREATMENT OF SNAKE BITE.

SIR: An Australian aborigine male, *atatis* twenty-four years, was brought to my surgery suffering from the effects of snake bite on the lower third and external part of the right leg. He had been bitten two hours previously by a tiger snake.

There was a loosely tied ligature of elastic ribbon, quarter of an inch wide, above the punctures on which some crystals of permanganate of potash adhered.

On examination the pulse was barely palpable, the pupils contracted, the limbs icy cold and the face and chest were covered with cold sweat.

I at once ligated above the part, scarified and applied Condy's crystals and made him swallow two ounces of *spiritus ammonie aromaticus* diluted and ordered a rectal injection of twenty grains of ammonium carbonate to the pint to be given and warmth applied to the body and extremities.

In about five minutes I could feel the pulse improve and noticed that the pupils were dilated. I watched by him and soon the pupils began to contract and the pulse flag. I then gave one ounce of *spiritus ammonie aromaticus* by the mouth and almost at once the pupils began to dilate. In about half an hour from this time he was warm, with dilated pupils and steady pulse and thereafter was not in further danger.

I feel sure this treatment is sound and it has the advantages of being easily carried and given without skilled aid and further no hypodermic injection is required. It would be of great use to take with one on shooting parties or picnics where these accidents occur.

I would unhesitatingly apply this treatment in shock from contact with electric power or from burns.

Yours, etc.,

ARTHUR WATKINS.

Bancroft Avenue, Roseville, New South Wales.

Undated.

Corrigenda.

SIR JAMES BARRETT informs us that the summary of his remarks on the ocular signs of exophthalmic goitre at the Australasian Medical Congress, British Medical Association, published in this journal on March 26, 1927, page 431, is incorrect. It was a patient and not he who took

thyroid extract to reduce his weight. He suggests that as the acoustics of the room were bad, the reporter had difficulty in hearing what he said.

WE have discovered that through an unfortunate accident the last line of Dr. W. M. Strong's article in the issue of April 23, 1927, was dropped. The sentence should read: "But, still, I suppose lack of money is a world wide complaint."

POST MORTEM EXAMINATION FEES IN WESTERN AUSTRALIA.

THE Minister for Justice of Western Australia has prescribed the following scale of fees to be paid to medical practitioners for attending at inquests and for making *post mortem* examinations.

For making a *post mortem* examination in Perth or Fremantle the fee is one pound six shillings. For making a *post mortem* examination at the goldfields, in the tropics and at all other places the fee is two guineas where a morgue exists and three guineas where no morgue exists. These fees are intended to cover all services including the preparation and cleaning of the morgue.

The fees of medical practitioners as witnesses at an inquest in all parts of the State are one guinea per day and half a guinea for half a day, that is for less than two hours.

When no public conveyance is available the following mileage per mile travelled both ways is paid: To cover the cost of a conveyance ninepence per mile is paid in Perth and Fremantle. A sum of one shilling and threepence is paid in the goldfields or in the tropics and a sum of ninepence in all other places. The Government reserves the right to supply a conveyance in lieu of paying mileage. For subsistence when ten miles one way are travelled, an additional sum of sixpence is paid in all parts of the State.

For viewing a body and making a report to the coroner without conducting a *post mortem* examination the medical practitioner will receive fees at the same scale as those payable to a witness.

When travelling to or from *locus in quo* of inquest or *post mortem* examination by rail, coach or public conveyance the medical practitioner will receive the actual amount of fare together with a subsistence allowance on the same scale as the allowance for attendance as a witness at an inquest.

The term goldfields applies to all proclaimed goldfields and the term tropics applies to all parts of the State north of 25° south latitude.

Under any extraordinary circumstances or in the case of dispute the remuneration allowed is to be determined by the Minister for Justice after he has taken the circumstances into consideration.

Obituary.

THOMAS HENRY FIASCHI.

WE regret to announce the death of Dr. Thomas Henry Fiaschi which occurred at Sydney on April 17, 1927.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

THE undermentioned has been registered, under the provisions of *The Medical Act of 1925*, Queensland, as a duly qualified medical practitioner:

Hungerford, Doreen Annie, M.B., Ch.M., 1926 (Univ. Sydney), Mount Isa.

Restorations to Register:

Smith, Ernest Bruce, M.B., Ch.M., 1920 (Univ. Sydney),
Toowoomba.
Meikle, Eric, M.B., Ch.M., 1918 (Univ. Sydney),
Brisbane.

MACDONALD PRESENTATION FUND.

THE following subscriptions to the Macdonald Presentation Fund have been received since the publication of previous lists:

	£	s.	d.
Dr. C. A. F. Clark	2	2	0
Dr. J. Morton	2	2	0
Dr. G. R. Hamilton	1	1	0
Dr. R. A. Noble	1	1	0
Dr. H. L. Tooth	0	10	6
Sums under 10s.	0	12	6
Amount previously acknowledged	245	1	6
Total	£252	10	6

Books Received.

- LOCAL IMMUNIZATION, SPECIFIC DRESSINGS**, by Professor A. Besredka; Edited and Translated by Dr. Harry Plotz; 1927. Baltimore: The Williams and Wilkins Company. Royal 8vo., pp. 216. Price: \$3.50 net.
- A MANUAL IN PRELIMINARY DIETETICS**, by Maude A. Perry, B.Sc.; 1926. St. Louis: The C. V. Mosby Company. Melbourne: Stirling and Company. Crown 8vo., pp. 146. Price: \$1.25 net.
- MEDICAL VIEWS ON BIRTH CONTROL**, by various authors, with an Introduction by Sir Thomas Horder, Bart, K.C.V.O., M.D.; Edited by Sir James Marchant, K.B.E., LL.D.; 1926. London: Martin Hopkins and Company, Limited. Post 8vo., pp. 194. Price: 6s. net.
- HOSPITAL HOUSEKEEPING AND SANITATION**, by Nora P. Hurst, R.N.; 1926. St. Louis: The C. V. Mosby Company; Melbourne: Stirling and Company. Crown 8vo., pp. 155. Price: \$1.25 net.
- EXOPHTHALMIC GOITRE**, by John Eason, M.D., F.R.C.P.E.; 1927. Edinburgh: Oliver and Boyd. Royal 8vo., pp. 227, with illustrations. Price: 12s. 6d. net.
- THE SHIP-SURGEON'S HANDBOOK**, by A. Vavasour Elder, D.S.C., M.R.C.S. (England), L.R.C.P. (London); Third Edition; 1927. London: Baillière, Tindall and Cox. Crown 8vo., pp. 537. Price: 10s. 6d. net.
- LESSONS ON MASSAGE**, by Margaret D. Palmer, Revised and the Massage Section Rewritten by Dorothy Wood, M.R.C.S., L.R.C.P.; Sixth Edition; 1927. London: Baillière, Tindall and Cox. Demy 8vo., pp. 328, with illustrations. Price: 10s. 6d. net.
- MEDICINE MONOGRAPHS: VOLUME XII: IMMUNITY IN SYPHILIS**, by Alan M. Chesney; 1927. Baltimore: The Williams and Wilkins Company. Royal 8vo., pp. 94. Price: \$2.50 net.
- CATALOGUE OF MEDICAL, SCIENTIFIC AND EDUCATIONAL BOOKS**, published by E. and S. Livingstone, Edinburgh; 1927. Demy 8vo., pp. 47.

Medical Appointments.

Dr. T. R. Pearce (B.M.A.) and Dr. C. Cook (B.M.A.) have been appointed Quarantine Officers.

Dr. Albert Curtis (B.M.A.) has been appointed Acting Medical Superintendent of the Hospital for the Insane and of the Receiving House, Ballarat, Victoria.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xx.

WATERFALL SANATORIUM, NEW SOUTH WALES: Senior Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Hon- orary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Boomerang Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia. Yarloop Hospital Fund.
NEW ZEALAND (WELLINGTON DIVI- SION): Honorary Secretary, Wellin- gton.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

- MAY 3.—Tasmanian Branch, B.M.A.: Council.
MAY 4.—Victorian Branch, B.M.A.: Branch.
MAY 4.—Western Australian Branch, B.M.A.: Council.
MAY 5.—South Australian Branch, B.M.A.: Council.
MAY 6.—Queensland Branch, B.M.A.: Branch.
MAY 10.—Tasmanian Branch, B.M.A.: Branch.
MAY 10.—New South Wales Branch, B.M.A.: Ethics Committee.
MAY 12.—Victorian Branch, B.M.A.: Council.
MAY 12.—New South Wales Branch, B.M.A.: Clinical Meeting.
MAY 13.—Queensland Branch, B.M.A.: Council.
MAY 16.—New South Wales Branch, B.M.A.: Organization and
Science Committee.
MAY 17.—New South Wales Branch, B.M.A.: Executive and
Finance Committee.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad per annum payable in advance.

To meet the wishes of those who only require a small
quantity of Brandy yet demand the best:

Hennessy's is now obtainable in small size bottles



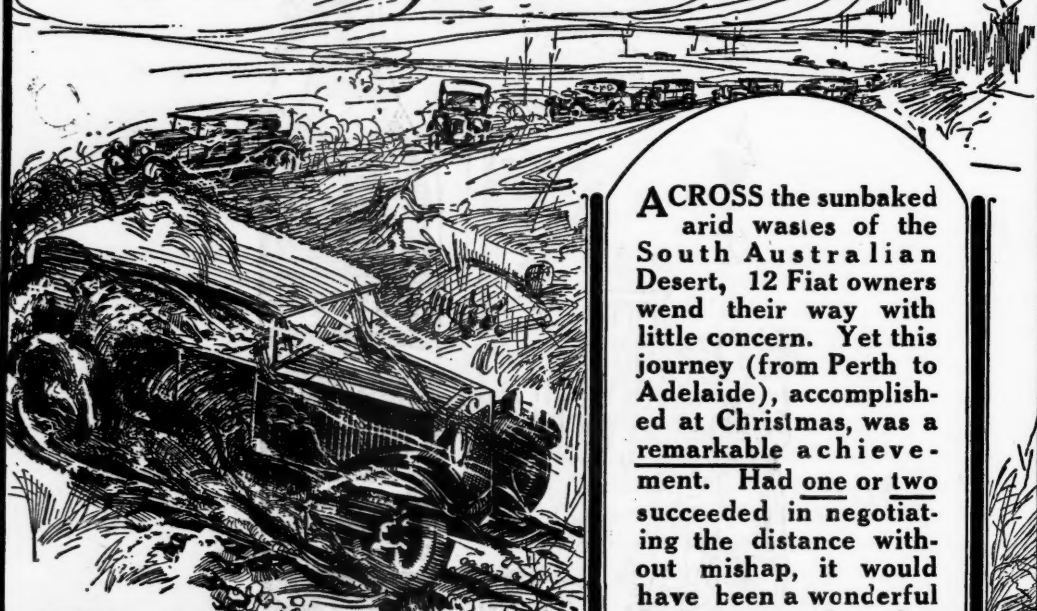
JOINT AGENTS FOR NEW SOUTH WALES:

GOLLIN & CO., PTY., LTD.

HARBOTTLE, BROWN, & CO., LTD.

Yet again **FIAT!**

12 FIATS *Make holiday trip of endurance testing journey across arid wastes of Australian Desert*



FIAT

"The Glory of Italy and the Envy of the World!"

ACROSS the sunbaked arid wastes of the South Australian Desert, 12 Fiat owners wend their way with little concern. Yet this journey (from Perth to Adelaide), accomplished at Christmas, was a remarkable achievement. Had one or two succeeded in negotiating the distance without mishap, it would have been a wonderful performance, but that 12 Fiats, under ordinary touring conditions, should do so is a feat which needs no further comment. One hundred per cent. efficient—their owners expected it from intimate experience

GOLDBERG

A Courteous Demonstration awaits you at

CONSOLIDATED MOTORS LTD.

FIAT DIVISION

FIAT HOUSE

175-7-9 Castlereagh Street

SYDNEY

'Phone M 2006